COMMAND AND GENERAL STAFF SCHOOL

MILITARY REVIEW

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COMMAND AND GENERAL STAFF SCHOOL
OFFICE OF THE ASSISTANT COMMANDANT
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June 1, 1940

To: Anyone who reads forewords.

There is no pursuit requiring more constant study and thought to insure the continued efficiency of the individual than the profession of arms.

It is true that there are in the art of war some principles which we speak of as being immutable, as true today as in the days of Alexander. But these are general in nature and few in number. Their application in the development of doctrine and method, what is currently taught as good military practice, changes from year to year in accordance with opinion and investigation, with the development of new arms and the study of contemporaneous wars. Our doctrine is in many respects quite different from what it was ten years ago, and it will continue to change.

These changes are reflected in the Military Review. It is published at the Command and General Staff School where the art of war is studied and expounded by our most competent and experienced officers. There is no better medium available to the American officer for keeping abreast of his profession.

KINZIE EDMUNDS,
Colonel of Cavalry,
Assistant Commandant.

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COMMAND AND GENERAL STAFF SCHOOL

MILITARY REVIEW

QUARTERLY REVIEW OF MILITARY LITERATURE

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Second Quarter

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Books

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Prelude to Victory—*By Brigadier General E. L. Spears*

The German Army—*By Herbert Rosinski*

Maneuver in War — *By Lieutenant Colonel Charles A. Willoughby*

Battle Against Time—*By Heinrich Hauser*

The Voice of Destruction—*By Hermann Rauschning*

Within Germany—*By Oswald G. Villard*

Verdun—*By Jules Romains*

Propaganda for War—*By H. C. Peterson*

A Navy Second to None—*By George T. Davis*

One Man's Fight for a Better Navy—*By Holden A. Evans*

The American War of Independence in Perspective—*By Lieutenant General Sir George MacMunn*

They Were Not Afraid to Die—*By A. C. M. Azoy*

●

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Mission

The object of this publication is a systematic review of current military literature, through cataloging articles of professional value, in selected military and naval periodicals, in the domestic and foreign field.

Articles from foreign periodicals are treated by translations of titles and digests of contents; material of particular importance is covered more extensively in a section of "Foreign Military Digests."

A "Library Bulletin" Section lists books, recently accessioned, which are of particular significance.

This *Review* is published as a guide to modern military tendencies and to inspire vigorous thoughts on the subjects treated.

The opinions expressed and conclusions drawn in articles are *solely those of the authors and are in no sense official.*

●

Acknowledgment

The editors desire to express their thanks and appreciation to the many persons who have valuably assisted in the preparation of material for this issue. The work of contributors has been done in addition to their regular duties and on their own time. We are very grateful to the following officers for their generous donations:

Lieutenant J. Dasher: *Krasnaya Zvyezda* (11 November 1939-18 January 1940)

Captain R. E. Jenkins: Offensive Doctrines

Captain H. D. Kehm: *Militärwissenschaftliche Rundschau* (May, July, December 1939)

Lieutenant Colonel P. J. Mueller: Supply of Forces in Sinai During the World War, 1914-1918

●

The Cover

Corps Artillery, 13th Field Artillery Brigade, Fort Bragg, N. C.

155-mm Gun (M1) — 36th Field Artillery

and

C-6 Balloon, 2d Balloon Squadron

Photograph by Sergeant Turlington — FA Board

U. S. ARMY TANKS IN MANEUVERS AT FORT BENNING, GA. *USA Signal Corps.*

Offensive Doctrines*

Opening Phase of Battle

BY CAPTAIN REUBEN E. JENKINS, *Infantry*†

I Section—C&GSS

War is the conflict of the opposing wills and forces (ecomonic, political, and military) of two or more peoples. In its conduct, the armed forces are employed "in combination with measures of economic and political constraint for the purpose of effecting a satisfactory peace" (Par 90). This peace can only be assured by the imposition of the will of the victorious people upon the people opposing them.

Battle is the conflict of opposing wills and forces of *the armed power* of peoples at war. The objective of each side is the imposition of the will of its commander upon the armed power of the opposing people, thus placing its own government and people in a position to dictate the terms of a satisfactory peace. Before this satisfactory peace can be secured the destruction of the hostile armed forces usually must be accomplished. Hence, "The *ultimate objective* of all military operations is the destruction of the enemy's armed forces in battle. Decisive defeat breaks the enemy's will to war and forces him to sue for peace which is the national aim" (Par 91). Sometimes, after a period of war, *the*

*Quotations herein followed by a paragraph number, e.g., (Par 91), are taken from FM 100-5, *Field Service Regulations (Tentative), Operations, 1939.*

†With apologies to those officers who assisted by collaboration and whose professional papers have furnished much of the material contained herein.

certainty of ultimate defeat as a result of economic or other pressures decides an enemy to sue for peace before the destruction of his armed forces is accomplished.

Battle consists of actions and reactions of a reciprocal nature. It is a unity, the study and knowledge of which cannot be limited to one-half (your side only) but the whole—both sides. For example, to attack successfully it is essential that a commander understand thoroughly the tactics and technique of the defense; to plan an attack correctly requires a thorough study and complete understanding of the nature of existing hostile defenses. The successful commander must understand this reciprocal nature of battle; he cannot operate in a water-tight compartment; he cannot limit his study and knowledge to a single method of battle. These reciprocals bear a true relation to each other: first, with respect to *space;* second, with respect to *methods.* There are two general methods of conducting a battle, *offensive* and *defensive,* and these are themselves the reciprocals of war. The *ultimate objective* of each of these *methods* is the destruction of the hostile armed forces. "Only through *offensive* action can a commander exercise his initiative, preserve his freedom of action, and impose his will on the enemy. A *defensive* attitude may, however, be deliberately adopted as a temporary expedient * * *" (Par 94); but, "Regardless of the considerations which dictated the adoption of a defensive attitude, the *tactics of defensive combat* are essentially to develop the maximum fire power against an advancing enemy," (cut his attacking forces to pieces in front of the defensive position) "* * * and thereby stop the enemy's advance or create a situation which favors a successful counterattack" (Par 509). Thus we see that, although we seek the offensive initially, we may be forced to take the defensive at some stage of the battle and pass to the counteroffensive at the right moment in a later stage in order to impose our will on our enemy.

Note the vast difference between this doctrine and the doctrine of the French Army in 1914, which was: "The French Army * * * knows no other law than the offensive." Until about 22 August, 1914, practically every order issued in the French Army contained the sentence: "The enemy will be attacked wherever found." As a consequence of this doctrine the French Army was, as is well known, led to the verge of disaster.

A full appreciation of the nature of battle and its conduct cannot be grasped without a complete understanding of its related methods and the relation of positive and negative methods with respect to space. There are certain phases of action through which the opposing forces must pass in planning, opening, conducting and closing a battle. These phases are the reciprocals of offensive and defensive battle with respect to both space and methods, and the adjuncts of each phase. These reciprocals are indicated by Chart I.

In analyzing the chart, it is necessary to remember that troops usually march to battle at the outset, under the protection of advance guards, whether the mission is offensive or defensive: that marches are broken by halts, at which time a march outpost is established, immediately followed by a complete outpost for the period of the halt; that the march is resumed from the outpost under the security of advance guards; and that during this whole period, active reconnaissance is being conducted by each side with a view to finding, guarding against, and fixing the opponent. This process continues until contact is completely established between the two forces by advance guards (or other covering forces) at which time both sides may take the offensive; but at some stage of the battle one side is thrown on the defensive and a battle to a decision is the result. When one side determines that its ultimate defeat is assured, it attempts to get away, break contact, and place time and distance between it and the victorious opponent until a more propitious time and place is reached for a resumption of the fight. Hence, a withdrawal is initiated. At this stage, if the mission permits and the victorious commander so wills, the victorious side takes steps to halt the defeated force's flight and destroy it so that it will not have to be fought again. Hence, a pursuit is the reciprocal of a withdrawal. If the defender succeeds in escaping the pursuing force, the whole process of finding, fixing, and fighting must start all over again.

THE RECIPROCALS OF THE OFFENSIVE AND THE DEFENSIVE

Positive Methods	*Relation in Space*	*Adjuncts*	*Negative Methods*
Marches Halts Outpost Rear Guard Flank Guard Reconnaissance Advance Guard	Out of Contact Contact probable Contact Imminent	Finding Fending	Marches Halts Outpost Rear Guard Flank Guard Reconnaissance Advance Guard
Covering Force Action	Making Contact	Fixing	Covering Force Action
Attack — Reliefs	Contact	Fighting	Defense — Reliefs
Pursuit	Breaking Contact	Finishing Following Finding	Withdrawals Delaying Actions
Advance Guard Marches Halts	Losing contact Out of Contact	Fending Fixing	Rear Guard Marches Halts

CHART I

The offensive, of necessity, consists essentially of the *positive* action of *controlled fire* and *movement.* The conduct of the offensive may be epitomized as follows:

a. Covering forces push in rapidly to find the main hostile position, its flanks, its weak localities, the terrain most favorable for attack, and (when necessary) to *fix* the enemy. (The strength of these forces will vary from a small fraction to about two-thirds of the command.)

b. While the covering forces are performing their tasks the main body is assembled with as much secrecy as possible, orders are issued and troops are formed for attack.

c. The formation for the attack usually consists of a main attack, a secondary attack, a base of fire, a general reserve, and the necessary protective forces.

(Note: These three, *a, b* and *c,* are the essentials of the opening phase of battle.)

d. (1) Attack units, under cover of supporting fire and smoke and taking advantage of favorable features of terrain, press forward without thought of alignment, attacking and outmaneuvering the enemy who resists, the most advanced units working to help those who are momentarily stopped. Each attempts, by taking advantage of the terrain, to outflank or envelop defended areas.

(2) Local reserves are disposed in depth to reinforce the leading units and to prevent their being cut off and isolated.

(3) Weak localities are exploited while strong localities are masked, isolated, avoided initially and later reduced by maneuver from flank and rear.

e. General reserves are held available to exploit the successes, to hold ground gained, to carry on the action against hostile countermeasures, and, finally, to enter the action at the crisis and assist in the complete destruction of the enemy.

f. The attack is made with all available means, the mass being disposed in depth behind the front chosen for the main attack.

This epitome embodies the doctrine of the attack, which, reduced to a single sentence is, *"Strike unexpectedly with the maximum power at a decisive place in a decisive direction."*

Leadership

Napoleon once said "In war *man** is everything, men are nothing." Note how steadfastly we believe in the truth of that statement, even today. *"Man** is the fundamental instrument in war * * *" (Par 99). "* * * the worth of the *individual* man is still decisive * * *" (Par 102). *"Troop leading* in combat, regardless of the echelon of command, calls for cool and thoughtful leaders with a strong feeling of the great responsibility imposed upon them. They must be *resolute and self-reliant* in their decisions * * *" (Par 103). The offensive demands of a commander these positive characteristics of the highest order; for only the offensive form of battle embodies those positive qualities which seek and promise a battle to a decision, and the first of these qualities is *initiative.* This permits the choice of objectives and directions, the organization of attack formations, the adaption of action to time, and the creation of opportunity. With initiative goes *high morale* which promotes *confidence* and *determination* which are essential to successful combat. In order to realize upon these advantages to the fullest, it is vital that the commander of a force with the initiative KNOW *what* he is going to do and have the strength of character to DETERMINE and ORDER, *when, where, how* and *why* it is to be done. But even this is not sufficient. Once the operation is launched, the commander must make his presence felt along the whole front, particularly during a crisis at any point; he must have *confidence* in his plan and in his command, and have the *courage* to *drive* his attack home with the dominance of his own personality.

History furnishes numerous examples of military commanders who, when confronted by a mission or situation requiring positive action, have remained inactive. Vacillating Persian commanders contributed to Alexander's success at the battle of Arbela in 331 B.C. Wallenstein was so over-cautious at Nurmberg, which he had been sent out to take in 1632, that Gustavus Adolphus quietly slipped out of his grasp. Burnside's own lack of confidence led to his replacement by Hooker after the battle of Fredericksburg in 1862. In 1914, Tannenburg might have turned out differently had it not been for Rennenkampf's irresolution.

*Italics ours.

The excuse ordinarily given for this lack of activity may be one of several: lack of information of the enemy, lack of means, or enemy too strong. Investigation has proven that these statements invariably have been but poor excuses. The real reason can be traced to a lack of will power on the part of the commanders. They were unable to make up their minds to take calculated risks.

History fails to record a successful commander who did not take carefully calculated risks, even in the face of greatly superior numbers. For, "Numerical inferiority does not necessarily commit a command to a defensive attitude. Superior hostile numbers may be overcome through greater mobility, more effective fire, higher morale, and better leadership. Superior leadership often enables a numerically inferior force to be stronger at the point of decisive action" (Par 94). Such was the type of leadership of Stonewall Jackson. It was not the size of his command that constantly disturbed the Union commanders; it was his uncanny ability to move his command like the wind, secretly, appear suddenly from nowhere "with a bone in his teeth," fall upon an exposed flank or rear like a bolt of lightning and cleave a path of destruction before the inertia, inherent in all defensive forms of battle, would permit the Union commanders to react. This type of leadership is also brought out in a conversation between Napoleon and Moreau which occurred in 1799 in the home of Gohier, who repeats it:

"The two generals, who had never seen one another, seemed equally pleased to meet. It was noticed that each looked at the other silently for a moment. Bonaparte spoke first, told Moreau how he had long desired to know him: 'You arrive victorious from Egypt,' answered Moreau, 'and I from Italy after a great defeat * * *.' After a few explanations of the cause of defeat, he added: 'It was impossible for our brave army not to be overcome by so much strength against it. It is always the greater number who defeat the smaller.'

" 'You are right,' said Napoleon, 'it is always the greater number who defeat the smaller.'

" 'But, General, with small armies you have often defeated big ones,' I told Napoleon.

" 'Even then,' he said, 'it was always the smaller number who were defeated by the greater.'

"Which caused him to explain his method to us.

" 'When, with smaller forces, I was in the presence of a great army, I rapidly grouped my own and fell like lightning on one of the wings which I destroyed. I then took advantage of the disorder which such a maneuver always caused in the enemy's ranks to attack him at another point, always with all my forces. I defeated him thus piecemeal, and the resulting victory was always, as you see, a triumph of the greater number over the smaller.' "

Thus we see how two of the Great Captains of the past exemplified that type of leadership which it behooves us to emulate. The truly great leader, in the absence of opportunities for successful offensive action, creates them by his own dominating will. In him you find the *true* doctrine, not of the *attack* alone but of the OFFENSIVE. The doctrine of the attack is not sufficient. The true doctrine of the *offensive* is more inclusive, more embracing than the doctrine of the attack quoted above. The true doctrine of the

offensive may be quoted thusly: *"In the absence of favorable situations for offensive action, create them. Then strike unexpectedly with the maximum power at a decisive place in a decisive direction. Having launched the effort, maintain its continuity with reserves and your own will, drive it with a ruthlessness and a determination that know no limits and give the enemy no respite, and desist only when the complete destruction of the hostile force has been accomplished."*

The Offensive-Defensive Combination

The necessity of combining the two forms of combat —offensive and defensive—is recognized in all modern armies. It is essential that a leader *know*, on occasion, on which part of the front to maintain a defensive attitude and on which part to pass to the offensive. Over a greater part of extensive fronts in contact, during the greater part of the time, both sides are on the defensive. In war the mental attitude is habitually that of the offense; but the physical attitude is habitually that of the defense. Our own doctrine recognizes this condition and is aware of the necessity for a *combination* of the two forms of combat. "In campaign, offensive action is occasional and for a limited period of time. Success comes from the ability of the commander to select the right time and place for offensive action" (Par 94).

The necessity of combining the two forms of combat, while long recognized and practiced, is more forcefully emphasized by modern developments in the scientific, economic, and political field and by the trend away from the idea that wars are fought only by professional soldiers and soldiers inducted for the period of the conflict. Today wars are fought by the whole nation, its whole people, its entire economic, political and religious structure, and all of these have now become the target of all the weapons at the disposal of the opposing side. The land and sea forces of a nation are no longer the only elements involved in a war; *the whole nation is at war*. As a result of these trends in military thought, these modern developments, and the modern conception of war as a catastrophe which involves a whole people, armies throughout the world have been and are being modernized. Our own is making rapid strides. New and improved weapons, the developments in mechanization, motorization and aviation on a much larger scale, the corresponding improvements and increases in antimechanized and antiaircraft weapons, all these developments are making and will continue to make great changes in tactical and strategical conceptions and doctrines.

Events of recent months have tended to bear out the predictions made by General MacArthur, our former Chief of Staff, and for which our training directives have attempted to prepare us:

"(a) The maximum utilization of relatively fast machines for transportation with consequent greater frontage in strategic deployments;

"(b) Increased unit fire power through employment of weapons of great efficiency, with resultant wider dispersion in tactical formations;

"(c) Increased efforts by all commanders to utilize the strategic and tactical mobility of machines so as to attack by surprise, particularly from the flanks;

"(d) Avoidance, so far as possible, of frontal assaults against strongly held positions, even where the attack is supported by combat vehicles and other types of modern weapons;

"(e) Growing utilization of air forces for information and for bombardment of sensitive points in the enemy's supply organization."

Offensive Situations

The leader who would become master of the art, especially in the offensive field, finds himself confronted with a variety of classifications of offensive battle, to which there seems to be no end. The theory or doctrine of the offensive is simple, easy to understand. It is its application to the wide field of variants that is confounding. Napoleon wrote that "The art of war is a simple art—and consists entirely of execution." It is this "execution" that is complicated and makes difficult the application of our theory of the offensive,

OFFENSIVE SITUATIONS

Unit	*Type*	*Strength*	*Location of Troops*	*Space*			*Time*	*Plan of Maneuver*	*Enemy Action*
				Type	*Contact*	*Condition*			
Division	Foot	War	Detached	Rolling	Out of	Rain	Night	Envelopment Single	Moving Meeting Engagement
								Double	
Corps	Mounted	Peace	Interior	River	Imminent	Foggy	Daylight	Close	Withdrawing
								Wide	
Army	Motorized	Variable	Flank	Beach	Making	Cold	Amount	Turning Movement	Delaying Retreating
Tactical Grouping	Mechanized		Reserve	Woods	In	Hot	Actual AM Noon PM	Penetration	Halt (Defense) Hasty Position Organized Position Fortified Position
	Air			Towns	Breaking	Fair		Piecemeal	
	Combined			Mountains	Losing			Pursuit	

CHART II

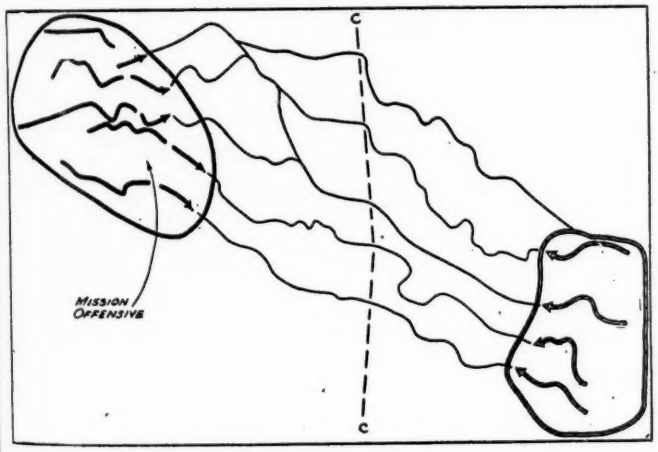
for no two offensive situations will ever be alike. The elements upon which they are based are too numerous to permit of identical conditions. The ways in which they may be classified are too numerous to list in this paper. Chart II, however, indicates some of the offensive situations with which a commander may be confronted and which must be solved under the conditions existing. An examination of the chart indicates that the combinations are almost unlimited.

Steps in Offensive Combat

The steps in offensive combat may be divided into three major phases: first, the opening phase, or entry into combat; second, the conduct phase to include the crisis of battle; and third, the closing phase, or actions after the crisis. Each of these phases are divided into sub-phases, so to speak, such as advance guard action, development and deployment, the approach march, the fire fight, the assault, the continuation of the attack, and exploitation (pursuit) or organization of the ground gained.

Entry into Combat

Entry into combat is a most delicate operation and requires careful advance planning if success is to be achieved. The plan must be started long before contact is gained, usually not later than in the last bivouac area prior to contact.



Sketch No. 1

Let us discuss a simple case. Sketch No. 1 shows a Red and a Blue force in bivouac at the end of a march. The Blue force has been marching east and will resume the march at daybreak tomorrow. The lines connecting the two bivouac areas represent the available roads. The distance between the two forces is about 25 miles. If both forces resume the march at daybreak they will meet in the vicinity of the line marked "C." The marching time for each will be about 5 hours; therefore, contact will probably be made around noon tomorrow. It will be assumed that the mission of the Blue force is offensive, while the mission of the Red force is unknown. It is here in this bivouac area, that the commander of the Blue force must begin his first step towards launching a successful attack. He must make a careful study of the tactical aspects of the situation confronting him (enemy, probable point of contact, probable maneuver, terrain). Based upon this study he takes the *first step* in preparation for the attack. He prescribes a formation for the march which he believes will best facilitate maneuver when the enemy is met. He provides the necessary means for control of the march so that a change of formation may be readily effected in accordance with the requirements of the situation. The commander controls the march through normal channels, or he may control the march by dealing directly with column commanders. Advance guards are normally controlled by respective column commanders, although the force commander is at liberty at any time to appoint a common commander for the several column advance guards in order to influence their action in accordance with his wishes.

The *second step* in entry into combat is the action by the covering forces (cavalry, advance guards). Let us assume that this action takes place about the line "C" on the sketch. This is one of the most important steps in entry into combat because what the covering forces do, or fail to do, will influence largely the employment of the main body in the attack, and may lead to success or to failure. Therefore, the force commander is vitally interested in this action. His plans for starting the attack formation (developing into assembly positions), and the employment of his main body in the attack, as well as the time of attack, depend to a large extent upon the action of the covering forces. Therefore, it is his duty to influence the action of the covering forces by appointing a common commander if necessary and assigning a definite mission (e.g., seizure of terrain, etc.), all to the end that he may employ the main body in accordance with his wishes.

The commander's presence well to the front during this phase is most appropriate. It enables him to observe the action of the covering forces, reinforce them with artillery and/or motorized infantry detachments if necessary, study the terrain, and select tentative assembly positions for elements of the main body. In this phase of the action, instructions to and conduct of the covering forces should be guided by the following doctrines:

a. Upon entering the zone of effective hostile artillery fire, or when contact is imminent, covering forces move forward on a broad front.

b. The mission assigned covering forces MUST be compatible with and in furtherance of the mission and plan of offensive maneuver of the main body.

c. Definite terrain objectives are usually assigned covering forces for the purpose of coordinating their action, the seizure or retention of which may require offensive, defensive or delaying action.

d. Terrain objectives assigned covering forces should afford observation to the front; and MUST be those whose capture or retention will furnish the necessary security, time, and space for the offensive maneuver of the main body. (The capture of the objectives may require either a march or an attack; the retention of the objectives may require defensive or delaying action.)

e. Covering forces push in rapidly and aggressively, on a broad front with little or no reserves, and locate the hostile main force, its detailed dispositions and its flanks.

f. Covering forces are reinforced with infantry only when the situation CLEARLY demands it; they are reinforced freely with artillery.

g. All covering forces engaged are placed under a single commander when coordination and supervision of their action can be accomplished best through a single commander.

The *third step* takes place immediately after the second step, or concurrently with it, and consists of the beginning of the formation for the attack—the development of the main body in assembly positions.

The elements in the situation which indicate the time of beginning the formation for attack are:

a. Time and space.—It is manifest that the attack formation would not be ordered until the distance between enemy and own force is sufficiently reduced to enable the attacking force to form in assembly positions just short of hostile effective artillery fire.

b. Enemy capabilities.—A commander must know the enemy capabilities and is seldom justified in ordering an attack formation until he has sufficient information of the enemy to *indicate* the latter's most probable lines of action. For example, when the enemy starts "digging in" this is an *indication* of his most probable line of action.

c. Fixation.—The enemy must be fixed, or in the process of being fixed. The fixation process may start prior to contact, by the enemy taking up a defensive position, or it may be delayed until our covering forces are in contact and limiting the hostile advance. Fixation may consist only of locating the enemy in an area in which his capabilities are limited to a very few lines of action. The fixing is *definitely* established when the enemy organizes and occupies a defensive position, and our covering forces have driven in his covering forces, located his main defensive works, and his flanks.

The familiar slogan, "Find 'em, Fix 'em, and Fight 'em," contains easy catchwords, and it is one of the most loosely used slogans in the whole military vocabulary. History records few cases in which a commander has previously "found" or "fixed" the whole of the hostile force with which he joins battle. On the contrary, most commanders have "found" new and unexpected hostile forces during the course of the battle; they have discovered that the "fixed" portion of the enemy was actually *small* compared to the host of enemy battalions which appear from nowhere and join the fight. *No command is completely fixed until it has committed its last reserves; then and then only has it lost its complete liberty of action.* "Find 'em, Fix 'em" are *relative* terms, with the degree of accuracy being dependent upon the activity and efficiency of reconnaissance agents and covering forces. The degree of definiteness required before the fight to a decision is opened, is dependent upon other elements in the situation, the mission, and the commander's own will. But there is nothing relative about the term "Fight 'em." That is the result of the decision reached by the commander after he has weighed the effectiveness of his "Find 'em, Fix 'em." The intelligent commander will realize that no energetic enemy will permit him to find *or* fix the whole of the hostile forces; in fact he knows he may have to be satisfied with *accurate* information regarding only those with which his troops are actually in contact. The commander must consider *all* the factors in connection with his decision to "Fight 'em," such as: his mission, weather, terrain, battle efficiency of his command as compared to that known of the enemy, the character of the hostile commander (if known), his mobility as compared to that of the enemy, status of supplies and equipment of own force and enemy, reinforcements expected (own and hostile), the time of day, and a number of other matters. Hence, whether you have or have not found or fixed the enemy as *completely* as you desire, is not the condition which determines whether or not you fight, or *when* you fight. The commander on the ground must determine from *all* factors involved in the situation *when* and *if* to order an attack.

Before forming the command for battle (commonly called "development") it is important that the commander know what the objective of his attack is to be and what form of attack he intends to employ to capture it. When ordering the development of the command for battle, the commander must be guided with respect to *time, place,* and *method,* by the following doctrines:

a. When time *is not* important, develop into positions centrally on the axis of advance, well to the rear.

b. When time *is* important, develop rapidly, close up, into positions favoring the plan of attack.

c. The greater the range and number of enemy guns, and the better the hostile observation, develop farther back.

d. In fog or darkness, develop close up; in daylight, develop farther back.

e. When defilade from hostile observation and fire is available, develop close up; when not, develop farther back.

f. When secrecy is vital, and time, plan of maneuver, approaches and road net permit, develop centrally or with the command equally balanced behind the flanks of the line of contact.

g. The smaller the command, or the lower its mobility, develop closer up.

h. In an obscure situation, develop well back and intensify reconnaissance, guard closely; situation relatively clear, develop close up.

i. Locate troops in assembly positions in accordance with their known or anticipated plan of employment. Locate assembly positions with respect to axis of advance of whole force, approaches into and out of positions selected, road net into and out of positions selected, and approaches to the vital objective and to the secondary attack objective(s).

j. Take full advantage of development phase to promote surprise through secrecy, deception, feints, demonstrations, and through the weight, speed, direction, and violence of the main attack; particularly through the location of assembly positions and the movement of troops by motor.

In large commands, divisions and larger, development is usually completed beyond the *effective* range of observed hostile artillery fire, but circumstances may dictate that assembly positions for the major combat elements be closer up. The *final* assembly positions of lower units such as regiments and battalions, however, must invariably be within effective range of the hostile guns. For example, the final assembly position of an infantry battalion is usually behind

the last cover available between it and the enemy, probably within effective range of the hostile machine guns but defiladed therefrom. During development in their final assembly positions, lower units must place chief reliance on dispersion, cover and defilade while entering, while in, and while leaving the assembly position, to reduce casualties to the minimum.

In the first three steps of this phase of action, the commander ordinarily must come to a definite decision with respect to: first, the focal point (or physical objective) of his attack; second, form of attack to be employed; third, the organization of the command into its two principal tactical groupings (the main and holding attack forces); fourth, the establishment of his base of fire; and lastly, the composition and location of his reserve.

The Objective

In many missions or orders we see such expressions as, "will seize Pigeon Hills and drive the enemy southeast against the Susquehanna." The focal point of the attack therefore is "Pigeon Hills," but the purpose of the attack is not to "drive the enemy southeast." The purpose of the attack is to destroy the enemy in the position he occupies; such phrases are for the purpose of informing subordinates in what direction it is desired the enemy be forced to retire, in the event he escapes destruction by the attack; this, in order that subordinates may plan their own maneuvers accordingly. The focal point, or objective, of the attack is the base upon which the whole plan of operations is built and should have certain definite characteristics. These are:

a. Its capture must be possible within the time and space limits imposed by the assigned mission.

b. It must be as important to the defender as to the attacker; that is, its capture should destroy the enemy in his position or the threat of its capture should force the evacuation of the hostile position.

c. It should have suitable approaches for the attack, such as a terrain corridor or down a ridge.

d. It should produce a convergence of effort between the main and holding attacks and force the enemy to fight in two directions.

e. It must be located in harmony with the objectives of coordinate and higher units in order to assure unity of effort and mutual assistance.

f. For a penetration, close, wide and double envelopment it should be within the battle area.

(Note: The above factors usually dictate that the objective be in or just in rear of the hostile artillery employment area.)

g. It is desirable that its capture facilitate future operations.

The Main Attack

The main attack must be launched in a decisive direction to secure the decision.

It is favored in the distribution of means.

Surprise is essential to its complete success.

Except in a penetration it should avoid the organized areas of the defense.

The Holding Attack

It consists of the minimum force necessary to hold the enemy in position, attract hostile reserves, and hinder the reinforcement of the front attacked by the troops making the main attack.

It employs fire and movement in accomplishing its task.

It conducts demonstrations and feints.

The Base of Fire

The base of fire for the attack is established by the heavy weapons with the command; by the artillery, in units having artillery present, and by the heavy infantry and cavalry weapons in units which have no organic or attached artillery present; or it may consist of a combination of artillery and heavy infantry weapons, employed in different areas but in cooperation with each other. The available heavy weapons are so disposed as to favor the main attack to the utmost. It is the special duty of the base of fire to superimpose on the plan of infantry maneuver, in accordance with instructions of the commander of the force, a plan of supporting and protective fires which will insure the assault echelons reaching their objective(s) at the earliest moment possible with a minimum of losses due to hostile fire and other hostile reaction.

The Reserve

At the start of the attack some force must be held in reserve for employment in the final or decisive phase of the action. From the point of view of the attack, the primary purpose of the reserve is to clinch the victory. However, there might be elements in the situation which require the use of the reserve on the defensive; consquently, the reserve *will* have offensive missions and *may* have defensive missions.

The size and composition of the reserve should not be such as to weaken unduly the holding and *particularly* the *main attack.* At the same time, it should be of such size as to have an appreciable effect on the action; when committed, a new reserve must be formed without delay.

Expected hostile reinforcements, or an obscure situation dictate a relatively large reserve; the existence of the contrary conditions dictates a relatively small reserve.

Final Preparations

The *fourth step* is a continuation of the *second step* which has been a continuing process, the driving in of the enemy's covering forces. Let us assume that the commander desires to make an envelopment rather than a penetration. It may be necessary to drive in the enemy's flank covering forces before possession can be gained of the ground from which to make the envelopment. This may require that the covering forces be reinforced by elements of the main body. It will often be the case that there will be a passage from the *third step* to the *fifth step,* direct, because of a completion of the *fourth step* concurrently with the *third.*

The *fifth step* constitutes the attack.

We see, from the picture presented, that, from the outset, the attitude of the commander must be offensive. He

must conduct his entry into combat carefully from the very beginning, taking particular pains at every step to seize any advantages that might contribute to a successful attack.

The Decision to Attack

There are several factors which govern the decision to attack, to defend, or to avoid combat. These are the mission, the tactical situation, the terrain, and the will of the commander. The size of the opposing forces is not included among these governing factors, for "mere numbers are not conclusive." A decision to attack should be made when: the mission requires aggressive action; the tactical situation is such that a reasonable degree of success can be expected; the terrain favors the attack; the commander *believes in its success* and is ready to use every ounce of his energy to push it through. This last factor is probably more important than any of the other three.

Timing the Attack

The hour of attack is the time at which the infantry advancing from its final assembly positions crosses the *line of departure*. This is determined by the following factors:

a. The time required to make the essential reconnaissance which seeks specially to "discover" the weak points in the enemy's dispositions, the location of his flanks and artillery positions, and the most favorable routes of approach.

b. Time required by the cooperating arms to coordinate their plans.

c. Time required by the infantry assault echelon to organize its attack in the final assembly positions.

d. Time required by the assault echelon to move from final assembly positions to the line of departure.

The presence or absence of reinforcements—enemy and friendly—and their location—whether distant or close—will have a decided influence upon the hour of attack. Let us assume that the mission requires an attack and that no friendly reinforcements are expected, but that the enemy is expected to receive them. In this case the commander must carefully consider the location of the enemy reinforcements and the possibility of their entry into action at the point of attack. Whatever their location, the attack should be launched in time to permit it to succeed prior to the intervention of those hostile reinforcements. If they are at a great distance, there may be time to launch time-consuming maneuvers such as striking the enemy deep in flank or in rear. If they are close at hand, there may be only enough time to launch an attack as troops become available from route column, that is, piecemeal.

Such an attack, i.e., one direct from route column, is justified only when:

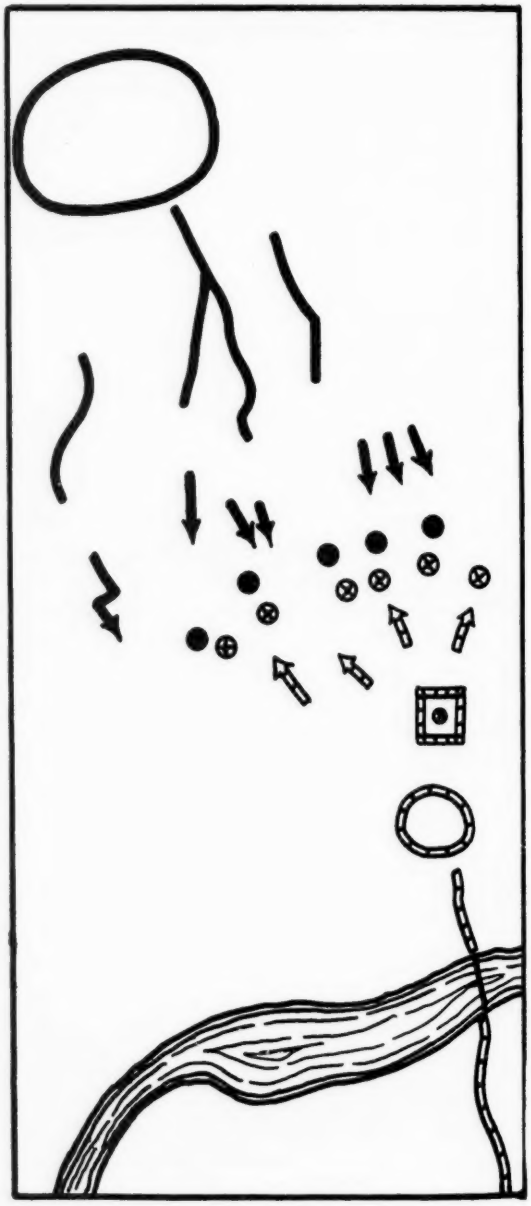
a. The mission will be accomplished by securing a limited objective;

b. Time is of such importance that delay incident to coordination in assembly positions runs unwarranted risk of failure to accomplish the mission;

c. The attacker has ample superiority in available combat strength (either in numbers or dispositions) and can maintain this superiority until he has gained his objective.

Let us assume that a Red (Sketch No. 2) force is moving north and is seizing a bridgehead north of an unfordable river with a portion of the force which has already crossed the river. A Blue force of equal strength is moving south in close proximity to Red with the mission of preventing Red from seizing the bridgehead. In this case Red is at a decided disadvantage, although the forces are equal numerically, because of his dispositions astride the unfordable stream. This disadvantage operates to make Red inferior to Blue for the time being. However, every moment that Blue delays an attack, works to the advantage of Red in that he may be able to get the remainder of his force across and in position prior to the attack by Blue. In a situation such as this, Blue should attack directly from route column as troops become available without waiting to go into assembly positions.

Hostile organization of the ground is another element that has a direct bearing on the hour of the attack. If the attack is to be launched against a hastily deployed defense,



SKETCH No. 2

as often happens in a meeting engagement, where the defender has not had time to organize the ground and perfect his plan of fire, the attacker is justified in attacking at an earlier hour than would be the case against a position that had been well organized. An early attack such as this catches the enemy at a disadvantage, for the success of the defense is largely dependent upon a well coordinated plan of defensive fires. It is advantageous to the attacker because he retains the initiative and forces the enemy to conform to his line of action.

The main disadvantage to the attacker is that he, like the defender, has had insufficient time to coordinate fully his plan of maneuver and supporting fires. However, the advantages ordinarily outweigh this disadvantage. If the defender has had ample time to organize his position and perfect his plan of fire it will require more careful preparation on the part of the attacker, in which case the time of attack will be much later than in the case just cited. For an attack against a position thoroughly organized in great depth, the attacker will require hours and probably days in which to perfect the plans for attack.

Time and space factors also have a direct bearing on the hour of attack. The number of hours of daylight available have a bearing on the time of attack. Ordinarily in a force the size of a division the attack should be begun in time to enable it to reach its objective prior to dark.

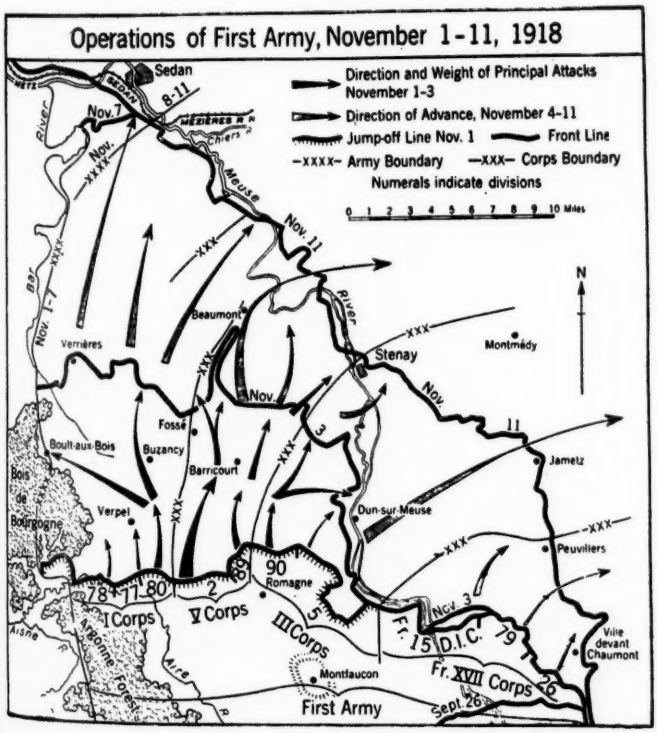
Tactical Forms for Attack

Penetrations

The penetration is a frontal attack which is made in sufficient width and depth to rupture completely the hostile position. The conditions which favor a penetration are:

a. Enemy's flanks unassailable.

b. Lack of time to make an enveloping maneuver.



MEUSE-ARGONNE OFFENSIVE, WORLD WAR 1914-1918

c. Overextension of the enemy.

d. Terrain and observation favorable for more effective cooperation of the combined arms.

"Such an attack can often be organized more quickly than an envelopment, especially if the objective is limited or a quick initial success is desired" (Par 420).

Assume that the enemy is in a defensive position with both flanks resting on impassable obstacles. In such a case, the attacker has no choice except to launch a penetration. The attacker distributes his troops so as to fix the enemy on those parts of the front where a decision *is not* sought, and masses his forces in *great* depth where a decision *is* sought. The depth of the mass for the decisive attack must be such as to provide three separate and distinct impulses. First, the position must be ruptured and a salient created; second, the rupture must be widened by attacks against the shoulders of the salient in order to secure maneuver room; and third, reserves roll up one or both of the flanks where the rupture has been created.

Historical Illustration (Penetration)

Meuse-Argonne Operations, Last Phase

Operations of the First Army, 1-11 November 1918

The order of battle of the First Army, from the Meuse River to the west was: the III Corps (Hines) with the 5th (Ely) and 90th (Allen) Divisions in line and the 32d (Haan) Division in reserve; the V Corps (Summerall) with the 89th (Wright) and 2d (Lejeune) Divisions in line and the 1st (Parker) and the 42d (Menoher) Divisions in reserve; and the I Corps (Dickman) with the 80th (Cronkhite), 77th (Alexander) and 78th (McRae) Divisions in line and the 6th (Gordon) and 82d (Duncan) Divisions in reserve. The 42d Division was transferred to the reserve of the I Corps soon after the beginning of the attack. The 3d (Preston Brown), 29th (Morton) and 36th (W.R. Smith) Divisions in the rear areas composed the Army reserve.

The general mission of the First Army was to cut the Metz—Sedan—Mézières railroad. The detailed plan for the attack contemplated a deep *penetration* by the V Corps in the center to secure Barricourt Heights, followed by a drive by the I Corps to connect with the French near Boult-aux-Bois. The capture of Barricourt Heights, which constituted a formidable obstacle, would compel a German retirement across the Meuse, so the III Corps, while assisting the main attack in the center, was directed to be prepared to force a crossing of the river if the enemy withdrew. There was to be no attack by the French XVII Corps—then on the heights east of the Meuse—until the crossing was started. The eastern edge of the Bois de Bourgogne was to be neutralized by heavy artillery concentrations of persistent gas.

The infantry advanced to the assault at 5:30 on the morning of 1 November, preceeded by a terrific two-hour artillery preparation. Squadrons of swift-flying, combat planes drove the enemy planes from the air and fired on the hostile infantry, while the bombing squadrons harassed important points behind the enemy's lines. The progress of the attack exceeded all expectations. In the center, the V Corps crushed all opposition and by early afternoon had

advanced about six miles and captured Barricourt Heights, thus assuring the success of the whole operation. On its right, the III Corps made a deep advance, wheeling toward the Meuse River to protect that flank of the army. On the left, the I Corps, which faced the unbroken Hindenburg Line on most of its front, attacked and made an average gain of about ½ mile. Its extreme right flank made a rapid and deep advance keeping up with the left flank of the V Corps.

This deep penetration of the hostile lines, which overran the enemy artillery positions, caused the German High Command to issue orders on the night of 1 November for the withdrawal from the First Army front west of the Meuse.

The First Army continued to drive forward on the 2d and 3d of November. The III Corps forced the enemy across the Meuse River, the V Corps made a maximum advance of seven miles, and the I Corps gained ten miles. By 4 November the Germans were in full retreat west of the Meuse, although still vainly trying to check the rapid advance of the First Army by means of rear-guard actions and the use of machine guns placed in strong, commanding positions.

The pursuit continued until 7 November, when units of the I Corps reached the heights overlooking the city of Sedan. The occupation of these heights effectively cut the lateral railroad through Sedan, which was the *main objective* of the Meuse-Argonne offensive.

Envelopments

An envelopment is an attack which seeks to *wrap up* the enemy. The attacks are directed against the enemy's front and one or both flanks, or his rear, at the same time. The objective of enveloping maneuver is to surround the enemy and accomplish his destruction without having to fight through his defensive works. "A successful envelopment requires skillful maneuver; superior mobility increases the prospect of success. An envelopment carelessly executed loses surprise and exposes either the main or the holding attack to defeat by hostile counterattack" (Par 416).

Envelopments are referred to, for descriptive purposes, as *close*, *wide*, and *double* envelopments and turning movements. These terms are not mentioned in orders to subordinates. The methods of organizing and controlling the main and secondary attacks are the distinguishing features of all envelopments.

Close Envelopment

In the *close envelopment*, the attack of the whole force is organized and controlled as a single unit by the superior commander. It implies close coordination and *direct* supervision of both the main and holding attacks and of supporting artillery by the commander of the whole force. It implies an ability on the part of the superior commander to exercise a *direct* and *timely* influence on the action of any of his major subordinate units on any part of the front with his base of fire (established by the artillery) and his reserves. Detailed orders to all elements of the command, designation of a boundary between the main and holding attacks, designation of a line of departure for the main attack force, and the retention of all artillery under the direct command of the superior artillery commander are characteristics of the close envelopment. The following factors have a decisive influence on the selection of this method of executing an envelopment:

a. Time working for the enemy—his reinforcements near, or his defensive ground organization gaining in strength.
b. Speed is more important than secrecy—terms of the mission require rapid action.
c. Terrain favors a *close* rather than a *wide* envelopment.
d. Suitable assembly positions for a *wide* envelopment are not available and cannot be secured within time permitted by terms of mission.

Wide Envelopment

A *wide envelopment* is one in which the attacks of the two tactical groupings, the main attack force and holding attack force, are organized, fought, and commanded by the commander of the whole force as two separate and distinct combat teams. The commander of the whole force, while commanding the whole action, assumes *direct* command of one of the tactical groupings and assigns *direct* command of all elements of the other grouping to one of his principal subordinates to whom he issues a mission type order, permitting him to operate under a detached status. The superior commander may remain with either force and assume direct command of it; usually, however, he accompanies the main attack force. The plan for a wide envelopment usually includes the allocation of combat means to the two tactical groupings, a mission type order to the detached force, detailed orders to the other force, and the necessary arrangements for coordinating the action of the two forces, which may or may not include a boundary between the two forces or a limiting line for artillery fire. The use of mission type orders, less coordination, omission of a boundary between forces, and attachment of artillery to the detached force are characteristics of the *wide* envelopment.

This method of carrying out an envelopment is usually necessitated by conditions such as wide interval between main and holding attack, existence of difficult terrain (serious obstacles) between the main and holding attack, conditions of visibility over zones of attack of the two forces, and difficulty of rapid communication between the two attacks, all of which may hinder or prevent the commander of the whole force from exercising a *direct* and *timely* influence over the action of both forces with his artillery, his reserves, and with his own will. One or more of these conditions *must* exist before this method of executing an envelopment is employed, for "all troops assigned to the execution of a distinct mission should be placed under *one command*. So long as the commander can exercise effective control, he does not decentralize * * *" (Par 116).

This type of maneuver presupposes the acceptance of certain risks, but these risks must not be so great as to expose unduly the command to defeat in detail due to a wide separation of forces. In this form of attack, the two forces are within mutual supporting distance. A bold, aggressive commander will accept carefully calculated risks in order to secure a decisive victory.

The success of the maneuver is dependent on such well established factors as:

a. Well trained troops and staff.
b. Surprise (secured by night marches, or by motor movement suddenly initiated and completed at top speed).
c. Safe movement of the enveloping force and secure assembly positions for its development.
d. Ample time for the enveloping force in the assembly position to prepare its attack. (Rest for troops is important if movement is made by marching; excessive marches must not be demanded.)
e. It is a time-consuming maneuver; the *mission* of the whole force, with respect to *time* and *space, must be possible of accomplishment* by this maneuver by the date and hour set by its terms.

Double Envelopment

A *double envelopment* is a maneuver in which both hostile flanks are enveloped simultaneously. The principles are the same as for the envelopment of one flank, except that, in effect, there are two main attacks instead of one, with a holding attack between them. In its execution, the maneuver on each flank may partake of the nature of a *close* envelopment or may partake of the nature of a *wide* envelopment, or the maneuver on one flank may have the characteristics of a *close* envelopment while the maneuver on the other has the characteristics of a *wide.*

"In the initial deployment, a simultaneous envelopment of both flanks generally requires considerable superiority of force" (in numbers, mobility, or dispositions). "Favorable conditions for the *double envelopment* through the use of reserves may, however, be created during the course of battle. * * * In such situations, double envelopments should always be attempted on account of the decisive results which are thereby attained" (Par 416).

The elements favoring a double envelopment are:

a. Both opponents preferably should be attacking. This causes the victim to walk into the enveloping trap.
b. One side must be deployed or capable of deploying on a broad front against an enemy confined to a much narrower front with little room or capability for maneuver.
c. The army seeking the double envelopment should fight a holding battle with its relatively weak center while enveloping forces on either flank drive in the enemy's flank detachments.
d. Finally, strong reserves which have been properly located in advance for just such a maneuver should strike on both flanks of the enemy, while mobile forces complete the envelopment by an attack from the rear.

It might be added that probably the most important requirement is to have as opponent an incompetent commander such as Varro, Bazaine, MacMahon, or Samsonoff.

Cannae, fought nearly 2,000 years ago, still remains the model for this type of maneuver. Sedan, Tannenberg, and the more recent German campaign in Poland, are brilliant examples of this type of maneuver which should always be attempted whenever there is a favorable opportunity because it aims at the complete annihilation of the enemy.

Turning Movcment

A *turning movement* is an enveloping form of maneuver which, unlike the *close, wide* and *double* envelopment, strikes at some point deep in the hostile rear (usually some vital point on the hostile lines of communication) from a location usually so far removed from the holding attack that the main and holding attack forces are beyond mutual supporting distance. And unlike the *close, wide* and *double* envelopment, the object of the turning movement is not the destruction of the whole of the hostile force in the position it occupies; its object is to create a situation deep in the hostile rear which will force the enemy to withdraw and fight on ground more favorable to the attacker, where he may eventually be starved into submission or destroyed.

A *successful turning movement* is dependent in a large measure on deception, secrecy, surprise, and speed of execution; this latter demands that troops of relatively high mobility be employed in the maneuver.

"Since a *turning movement* ordinarily requires the division of the command into two tactical groupings which are beyond mutual supporting distance, each grouping must be made strong enough so as to avoid defeat in detail" (Par 419).

The Destructive Power of Envelopments

There is no end to the list of historical examples of enveloping maneuvers which have been executed whenever practicable, and of the decisive results which have followed such action.

The double envelopment, with efforts on both flanks, was used by Miltiades against the Greeks at Marathon in 490 B.C., while the classic example of enveloping tactics is still that of Hannibal at Cannae in 216 B.C. It was not, however, until the latter part of the Eighteenth Century that infantry was extensively used in envelopments, that role having been delegated to the cavalry up until then. Of more recent date and consequently of more interest to the present day students of military tactics is the battle of Tannenberg, 26-29 August 1914, which produced such decisive results during the World War.

Historical Illustration

Battle of Tannenberg. 26-29 August 1914

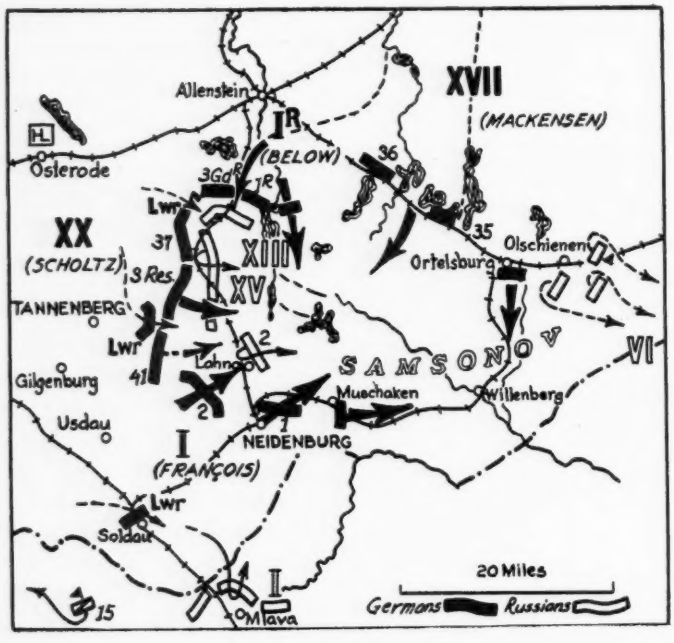
Germany concentrated in East Prussia about 200,000 men comprising four regular corps and a certain number of reserves. These forces were in two groups—one for the protection of Konigsberg, and the other for the protection of Danzig. The whole force (called the Eighth Army) was under the command of General Prittwitz.

Russia concentrated two armies at once, the First Army (General Rennenkampf) in the region of Vilna-Kovno and the Second Army (General Samsonoff) in the region of Warsaw. Each army consisted of four or five corps. The group was under the command of General Jilinski, whose plan of maneuver was to deliver a converging attack astride the Masurian Lakes with the idea that the First Army (General Rennenkampf) would drive the Germans west, while the Second Army (General Samsonoff) would envelop the German southern flank.

The Russian First Army (General Rennenkampf) that originally was to defend against Germany, completed its concentration and, crossing the frontier 17 August, defeated General Prittwitz' total field force (less the XX Corps) at Gumbinnen 19 August, and occupied Insterberg.

The Russian Second Army (General Samsonoff) without waiting to complete its concentration crossed the frontier 21 August, and advanced toward Allenstein.

General Prittwitz reported to von Moltke that the country east of the Vistula must be abandoned. On 22 August, von Moltke detailed von Hindenburg to relieve von Prittwitz on the Russian front.



BATTLE OF TANNENBERG

On 22 August, from his train, General Hindenburg sent orders for the retirement of the I Corps to Deutsch-Eylau behind the right wing of the XX Corps near Tannenberg.

General Hindenburg arrived at Eighth Army Headquarters on the afternoon of 23 August. He estimated that General Jilinski's force was greatly superior in numbers; but, as the Russian force was in two groups and divided by the obstacle of the Masurian Lakes, he decided to assume the offensive and to operate on interior lines by containing the First Army while destroying the Second.

Von Hindenburg contained the Russian First Army with the thinnest kind of a screen—one cavalry division—and from 26 August, with only two brigades of that division. These two cavalry brigades were the only force that stood in front of General Rennenkampf's First Army of twenty-four infantry and several cavalry divisions.

August 23d was designated as the day for the German concentration in front of the Russian Second Army. The plan of maneuver against that army called for a double envelopment by the troops arriving from in front of the Russian First Army, and from the fortresses Thorn and Graudenz, while the center was to be held lightly by the XX Corps then on the line.

General Rennenkampf (First Army) estimated that the German main force was near Konigsberg and continued to push the thin German screen back in that direction.

General Hindenburg finished his concentration and attacked according to plan, at 4:00 AM, 27 August. The attack succeeded and by the 29th, the Russian Second Army had lost two of its four corps and most of its artillery and transport. The Russian I and VI Corps and other remnants of the army escaped to vicinity of Ossovietz. General Samsonoff shot himself to escape capture. The German armies had won a Cannae.

CONCLUSIONS

It should be remembered that the price of victory is hard fighting and that no matter what maneuver is employed, ultimately the fighting is frontal. The whole art in defense is to make the attacker expend himself in frontal attacks. This he can do as long as he has freedom of choice of movement of his reserves (infantry and artillery). Therefore the attacker's objective is first, to cause the defender to dissipate, disperse, or dislocate his reserves, so that, secondly, the *main attack* is driven home. This driving home disrupts the defensive organization not only by killing, but by destroying the hostile communication, command and observation systems. A successful defense must be strong everywhere, because a planned attack, successful at one point, usually results in victory.

It is obvious that as long as the defender has formed reserves so located that he can employ them against the main attack, he is not yet defeated. During the process of the fight the defender will be forced to commit increasingly larger proportions of his reserve. The fight is then approaching that critical point where the art of generalship is displayed by the time, place and direction in which the attacker's general reserve is used.

Assuming equal mobility, it is difficult to fool a defender as to the location of the main attack unless intelligent steps are taken to secure secrecy of movement in the concentration of the force for the main attack. When the defender occupies or controls the area on the flank where it is desired to assemble the force for the main attack, it is necessary to fight to get there. The fight demanded, in itself, locates the main effort unless measures are taken to drive in all defensive covering forces on both flanks.

And finally, although "An objective may sometimes be attained through maneuver alone; ordinarily, it must be gained through battle" (Par 413). Blood is the price of victory. One must accept the formula or not wage war.

* * * * * * *

The strength of an army, like the momentum in mechanics, is estimated by the weight multiplied by the velocity. A rapid march exerts a beneficial moral influence on the army and increases its means of victory.—Napoleon.

MILITARY NEWS around the WORLD

By Major Wm. H. Speidel, *Infantry*

AFGHANISTAN

The danger of encroachment by Russia has spurred King Zahir Sha to reorganize the Army of Afghanistan. The present force consists of 125,000 men organized in four infantry divisions, one artillery division, one brigade of cavalry, and one division under the direction of the King. Compulsory military service extends over a period of two years. The military academy at Kabul, where many German, Italian and Turkish officers are instructors, has an enrollment of about 1500 students. Each year a certain number of Afghan officers are sent abroad to study at foreign military schools. The force is gradually being equipped with modern matériel, including tanks, armored cars and motor transportation. The aeronautical school is conducted by officers from the Italian and German Armies.

(*La France Militaire*, 1 February 1940)

BELGIUM

A new 1600-ton man-of-war to be called the *Artevelde* is under construction for Belgium. Its characteristics include: length, 323.4 feet; beam, 34.5 feet; draft, 11.9 feet; 30,000 h.p.; speed, 30 knots; armament, four guns in a pair of twin turrets with two antiaircraft guns.

(*Norsk Tidskrift for Sjövessen*)

BULGARIA

Preparations are being made for the proposed air service between Moscow and Sofia, which is expected to commence operation before the coming summer.

(*The Aeroplane*, 16 February 1940)

DENMARK

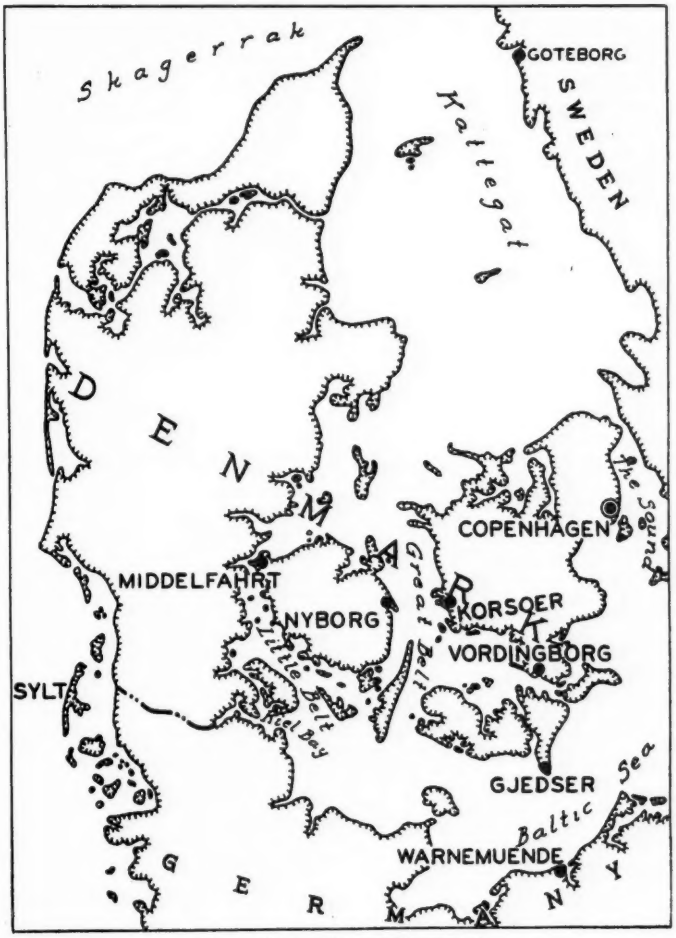
Denmark covers an area of 16,575 square miles (slightly larger than Massachusetts and New Hampshire combined) and has a population of 3,750,000.

In May 1935 there were 102,300 industrial factories, 43,600 of which used mechanical power; they employed in all a total of 459,800 persons. This country produces a great amount of butter and dairy products. The manufacture of beet sugar, beer and distilled liquors forms the basis of a number of important establishments.

In 1938 the fishing fleet consisted of about 15,700 boats.

There is a regular ferry operating daily between Warnemuende, Germany and Gjedser, Denmark. It was this ferry which served as a means to transport German troops and an armored railway train to Denmark during the early morning of 9 April 1940. Simultaneously the Germans also made landings at Middelfahrt, Nyborg and Korsoer.

(*Statesman's Year Book* and *Foreign Press*)



North Sea—Baltic Gateway

FINLAND

In the opinion of Swedish military experts, the war in Finland offered an unusual opportunity for the study of the principles of quality and quantity, morale and matériel. An army must be inspired with a single idea and be commanded

by a single commander. This campaign presented a good lesson on how war should be fought in the North.

(*Militär-Wochenblatt*, 23 February 1940)

FRANCE

The French Military Service:

Enlistment for the Metropolitan Army is regulated by the law of March 17, 1935, and is on a compulsory basis, but liberal exemptions are allowed. Service in the active army is for eighteen months and begins in the twenty-first year, the first half of the annual contingent joining in November, the second half in the following May. In consequence of the European situation the contingents of the years 1936-1940 will serve two years. The total duration of service in the active army and the reserve is twenty-eight years. Provision is made for the enlistment of 106,000 long service, professional soldiers, 76,000 for the Metropolitan and 30,000 in the Colonial Army. After serving for two years, the soldier remains immediately available for military service for three years. In his fourth year of service he joins the first line of reserve for sixteen years; in his twentieth year of service he joins the Territorial Army in which he remains for eight years.

(*Statesman's Year Book*, 1939)

GERMANY

The Messerschmitt Me 110 Two-Motor Fighter:

Dimensions: Span 55 feet, length 35 feet, height 10 feet 9 inches, wing area 414 square feet, aspect ratio 7.3, track 15 feet 2 inches.

Weights:

Structure and Power Plant: Wing 2000 pounds, fuselage 1600 pounds, undercarriage 1000 pounds, tail unit 300 pounds, power plant (including tanks) 5000 pounds. Empty weight (tare) 9900 pounds.

Disposable Load: Fixed Equipment 330 pounds, crew (two) 400 pounds, fuel (400 gallons) 3000 pounds, oil (28 gallons) 250 pounds, armament 800 pounds. Total disposal load 4900 pounds.

Loaded Weight (Gross): 14,800 pounds.

Loadings: Wing 35.80 pounds per square foot, power (take off) 6.44 pounds per h.p., span 4.90 pounds per square foot.

Performance:

Maximum speed: 365 m.p.h. at 16,500 feet.

Range, cruising at 15,000 feet: 820 miles at 365 m.p.h. Duration 2¼ hours. 1500 miles at 215 m.p.h. Duration 7 hours. 1750 miles at 175 m.p.h. Duration 10 hours.

(*The Aeroplane*, 12 January 1940)

Berlin-Moscow:

A daily service between Berlin and Moscow was started 20 January 1940 for passengers, mail and freight. Machines leave Berlin at 11:45 AM daily and arrive at Moscow at 2:50 PM the following day. From Moscow the service starts at 10:45 AM daily and arrives at Berlin at 11:05 AM the next day. The service is operated in pool by the Deutsche Luft Hansa and the Soviet Aeroflot, and is by way of Minsk, Bialystock, Koenigsberg and Danzig.

(*The Aeroplane*, 26 January 1940)

Air Defense of Hamburg:

Hamburg's 88-mm antiaircraft guns are concealed in well-camouflaged emplacements several miles outside the town. Each battery consists of four guns. The searchlights and sound locators are some distance away, arranged in groups of three, each group working with three guns. The searchlights are separated by several miles. The sound locators are manned day and night, and an alarm is sounded the instant the noise of an airplane motor is heard in the microphones. All guns and searchlights can be manned within twenty to thirty seconds, as the crews sleep or rest with only their boots off.

Batteries are divided into sub-groups, and the commander, usually a major, directs the fire of all the guns in the sub-group. If enemy bombers penetrate this ring of heavy guns and reach the city, they will be fired at by light antiaircraft guns on the roofs of high buildings. Unlike the heavier guns, these lighter weapons are not grouped, but are spread over a wide area, positions being chosen so that the fire of two guns overlaps.

(*Hamburger Fremdenblatt*, 27 January 1940)

Acceleration in Promotions of Army Officers:

A recent study of changes in the commissioned personnel of the Reichswehr following a period of over nine years—May 1930 to August 1939—indicates a rapid acceleration upward. At the beginning of this period there were 42 generals. In August 1939 two were listed as army commanders, five as unassigned and 35 as deceased or retired. Likewise, of 106 colonels, two had become army commanders, seven corps commanders, one a general of the air service, five division commanders, three brigade commanders and 88 deceased or retired. Of 192 lieutenant colonels, one had become an army commander, 25 corps commanders, two generals of the air service, 25 division commanders, one a commander of an air division, 12 brigade commanders, one a commander of an air brigade, five colonels and 120 deceased or retired. Of 378 majors, three had become corps commanders, seven generals of the air service, 31 division commanders, eight commanders of air divisions, 139 brigade commanders, 16 commanders of air brigades, 67 colonels, one a colonel of the air service and 106 deceased or retired. Of 1100 captains, 13 had become brigade commanders, 15 commanders of air brigades, 400 colonels, 40 colonels of the air service, 450 lieutenant colonels, 40 lieutenant colonels of the air service and 142 deceased or retired. Of 1300 first lieutenants, ten had become colonels of the air service, the others lieutenant colonels or majors. Of 600 second lieutenants all had become majors or captains.

(*La France Militaire*, 24 February 1940)

Antiaircraft Artillery:

The basic unit of the German antiaircraft artillery is the *Abteilung* or battalion. The heavy battalion is composed of:

A staff battery, including a meteorological section.
Three gun batteries, manning four 88-mm guns each.
A light battery, manning six 20-mm *Flaks*, or antiaircraft guns.
A searchlight battery, operating nine 1500-mm lights.

In the field the six 20-mm guns are divided among the gun batteries, two to each battery.

A light antiaircraft battalion recently observed was composed of:

A staff battery.
Three firing batteries, manning twelve 20-mm guns each.
A searchlight battery, operating twelve 600-mm lights.

It was stated that a 37-mm battery will be added to the organization as soon as the equipment becomes available. Although books on antiaircraft artillery make little mention of machine guns, it has been noted that some antiaircraft machine-gun companies are being employed.

One of the most interesting and important developments in antiaircraft artillery is the intermediate caliber weapons. In the German artillery there are two distinct types in service, the 20-mm and the 37-mm guns.

The 20-mm gun in traveling position with accessories weighs about 1500 pounds. The ammunition clip holds 20 rounds, each cartridge weighing about 10½ ounces. With its super-sensitive fuse, a round fired from a distance of 150 meters at two pieces of cardboard, 2-mm thick, spaced 200 millimeters apart, penetrated the first piece with a clean hole, and exploded before reaching the second piece. Fired at a meteorological balloon, the round exploded within the balloon. Fired at an airplane wing, it burst between the surfaces, completely shattering the structure. The shell is self-destroying after a flight of 5.5 seconds or about 2100 meters range. The muzzle velocity of the weapon is 900 meters (2953 feet) per second. The secret of its success is attributed to its fire control sight, which is of the reflecting-mirror type, with a data calculating mechanism. The rate of fire usually obtained is about 110-120 rounds per minute, the piece being carefully laid for each burst of two or three rounds.

(*United States Naval Institute Proceedings*, February 1940)

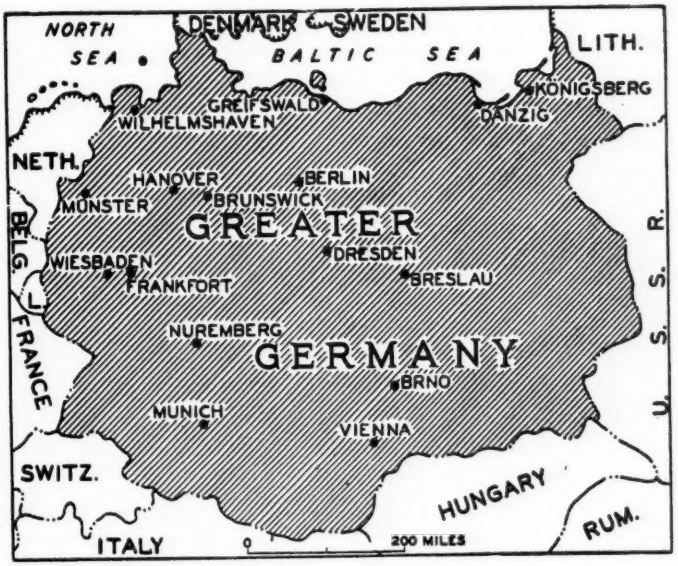
ORGANIZATION OF THE GERMAN AIR FORCE AND AIR MINISTRY

Strategic Organization of the Luftwaffe

Unit	*Headquarters*	*Commander-in-Chief*
First Air Army (Eastern)	Berlin	General Kesselring
Second Air Army (Northern)	Brunswick	General Felmy
Third Air Army (Western)	Munich	General Sperrle
Fourth Air Army (South Eastern)	Vienna	General Loehr
Independent Air Force Command East Prussia	Königsberg	General Wimmer
Independent Command of the Air Defense Zone West	Wiesbaden	General Kitzinger
Command of the Air Defense in the Industrial Areas of Ruhr and Rhineland		General Steudemann

Tactical Organization of the Luftwaffe

Unit	*Headquarters*	*Commanding Officer*
First Air Division	Berlin	Lt. Gen. Grauert
Second Air Division	Dresden	Lt. Gen. Loerzer
Third Air Division	Münster	Maj. Gen. Putzier
Fourth Air Division	Brunswick	Lt. Gen. Keller
Fifth Air Division	Munich	Lt. Gen. von Gleim
Sixth Air Division	Frankfort	Maj. Gen. Desloch
Seventh Air Division (Air Force Training Division)	Greifswald	Lt. Gen. Förster



Localities of Strategical and Tactical Units of the Luftwaffe.

Commands of the Air Zones (Luftgaukommandos)

1. Königsberg. Lt. Gen. Mohr.
2. Danzig. Unknown.
3. Berlin. General Weise.
4. Dresden. Maj. Gen. Mayer.
5. Unknown.
6. Münster. Major Gen. Schmidt.
7. Munich. Maj. Gen. Zenetti.
8. Breslau. Maj. Gen. Waber.
9. Unknown.
10. Unknown.
11. Hanover (or Brunswick). Maj. Gen. Wolff.
12. Frankfort. Maj. Gen. Weissmann.
13. Nuremberg. Maj. Gen. Heilingbrunner.
14. Unknown.
15. Unknown.
16. Unknown.
17. Vienna. Lt. Gen. Hirschauer.
18. Brno. Unknown.

The Air Defense of North-West Germany:

Wilhelmshaven, Headquarters of the Commander of the German North Sea Fleet, has become also the Headquarters of the North-West Air Defense. The commanding officer and staff of this new command are housed in large dug-

outs a few miles from the city, where reports concerning approaching enemy machines are received. On large scale maps officers follow the flight path of the raiding machines. As soon as the first report has come through, warning is given to all the defense units along the coast, to naval vessels, and to the large industrial establishments of the districts, especially those in and around Wilhelmshaven. A large number of the personnel of the headquarters consists of girls who, mostly employed as telephone operators, work in six-hour shifts.

The active defense of this region is entrusted to a Fighter Group, commanded by Lt. Colonel Schumacher. This group, known as the *Schumacher Group,* consists of two wings of three squadrons each. One wing is equipped with Messerschmitt Me 109s and the other with Me 110 two-motor fighters. The Me 109s are of the latest type equipped with cannon as well as machine guns. By using a larger number of squadrons for a single tactical task, the Germans have revived the tactics of the so-called Circus of the War of 1914-1918.

Distribution of the German Air Command:

Air Minister and Commander in Chief of the German Air Force: General Field Marshal H. W. Göring.

1. Chief of the Air Staff: Lt. Gen. Jeschenneck.

2. Chief of the Ministerial Office: Lt. Gen. K. Bodenschatz.

3. President of the Aerial Armament Committee: General Rüdel.

4. Director of the Academy of Air Warfare at Berlin-Gatow: General Volkmann.

a. Director of the Higher Air Warfare School at Berlin-Gatow: Lt. Gen. Bieneck.

b. Director of the Historical Section of the Air Ministry: Maj. Gen. Haehnelt.

5. Secretary of State and Inspector General of the German Air Force and also Deputy of the Minister: Colonel General E. Milch.

a. Chief of the Air Force and Antiaircraft Artillery: General Stumpff.

(1) Directorate of Civil Aviation.

(2) Directorate of the Administration of the Air Force, with the Sections: Budget, Pay, Clothing and Barracks.

(3) Directorate of the Personnel of the Air Force, with the Sections: Officers, Soldiers, Civil Servants, Employees and Workmen.

b. Chief of the Flying Equipment Branch: Lt. Gen. Udet.

(1) Principal Technical Advisor: Air Staff Engineer Lucht.

(2) Three Directorates with 19 Sections and several branches and experimental stations: Design, Development, Construction, Testing, Employment, Supply of Aeronautical Material and all Questions concerning the German Aircraft Industry.

c. Chief of Education, Instruction and Training: General Kühn.

(1) Directorate of Education and Instruction.

(2) Directorate of Training.

(3) Directorate of Regulations.

(4) Directorate of Aerial Photography.

(5) Supervises the activities of the following Inspectorates:

(a) Army Cooperation. Bombing and Reconnaissance. Fighter Machines and Armament.

(b) Antiaircraft Artillery. Air Safety and Instruments. Ground Transports.

(c) Observer Corps. Naval Air Arm. Training School for Pilots.

(d) Education and Command of Air Warfare Schools. Parachute Troops and Air Infantry. Navigation.

(e) Civil Aviation. Aviation Medicine. Military Economics.

d. Chief of Intelligence: Lt. Gen. Martini.

e. Chief of Administration: General von Witzendorff. Directs the activities of the following Sections:

(1) Legal Section.

(2) Attache Section.

(3) Organization Section.

(4) Press Section and Library.

(5) Air Minister's Office.

(6) Commandant of the Luftwaffe personnel employed at the Air Ministry.

Liaison Officers:

Army: Lt. Gen. Bogatsch.
Navy: Gen. H. Ritter.

At the Disposal of the Air Minister: General Wilberg (organized German assistance to General Franco).

(*The Aeroplane,* 16 February 1940)

GREAT BRITAIN

United Air Force:

Air Marshal A. S. Barratt took over his duties as Air Officer Commanding in Chief British Air Forces in France 14 January 1940, an act which united the British Air Forces in France under one command.

(*The Aeroplane,* 26 January 1940)

The British Military Service:

The personnel for both Regular Army and Territorial Army are enlisted volunteers. The Reserve Forces consist of the Army Reserve, the Supplementary Reserve of Officers and the Supplementary Reserve, the Militia and the Channel Islands and Colonial Militia, and the Territorial Reserve. The Army Reserve is composed of men who have completed their period of active service with the Regular Army; its strength 1 January 1939 was 144,000. The strength of the Supplementary Reserve 1 January 1938 was 67,945. The Channel Islands and Colonial Militia consist of the Channel Islands Militia, the Malta Militia, the Bermuda Militia, and the Isle of Man Volunteers. The Territorial Reserve is in the process of formation.

Service is for twelve years and, under certain circumstances, permission may be granted to extend it to 21 years. Usually men serve for seven years with the colors and five in the Army Reserve, a rule adhered to by the infantry other

than the Foot Guards. The age for enlistment is between 17½ and 25 years.

(*Statesman's Year Book*, 1939)

Australia

New Chief of Staff:

Air Marshal Sir Charles Stuart Burnett, Inspector General of the Royal Air Force, has been appointed chief of the Australian Air Staff. He began his military career as a private in the Imperial Yeomanry in 1900 and a year later received his commission in the Highland Light Infantry. He resigned his commission in 1907, but again entered the service in 1914, going directly into the R.F.C. During the war he served in France and Palestine and, after the war, much of his service was done in the Middle East and Iraq. He is fifty-seven years of age.

(*The Aeroplane*, 12 January 1940)

According to a statement made 26 January 1940 by Mr. L. R. MacGregor, Australian Trade Commissioner in the United States, Australia will spend approximately $1,000,000 a day during the current fiscal year in strengthening the country's defense and in contributing to the war efforts of Great Britain. He stated that seventy million dollars is being spent on the Australian Navy, that a home defense force of 75,000 men is being maintained and that 20,000 volunteers have enlisted for service abroad.

(*Foreign Press*)

Canada

First Royal Canadian Air Force Squadron:

Canada's first R.C.A.F. Squadron to be recruited and trained for service overseas in the present war, arrived in England 25 February. This squadron is the oldest auxiliary squadron in Canada and was formed in Toronto. The officers and men come from all parts of Canada, and are drawn from three units: The Toronto Squadron, a Winnipeg Auxiliary Squadron and a Regular R.C.A.F. Squadron from Ottawa. Shortly after the outbreak of the war they were assembled for intensive training as a unit and were trained on the Canadian-built Westland Lysanders.

(*The Aeroplane*, 1 March 1940)

GREECE

Economic Pact with Britain:

Greece concluded an economic pact with Britain 26 January 1940 under which Greece agrees to sell dried fruits, tobacco and chrome ore to France and England in return for credits. Greece produces a small quantity of chrome, a product for which Germany has normally been her best customer.

(*Foreign Press*)

HUNGARY

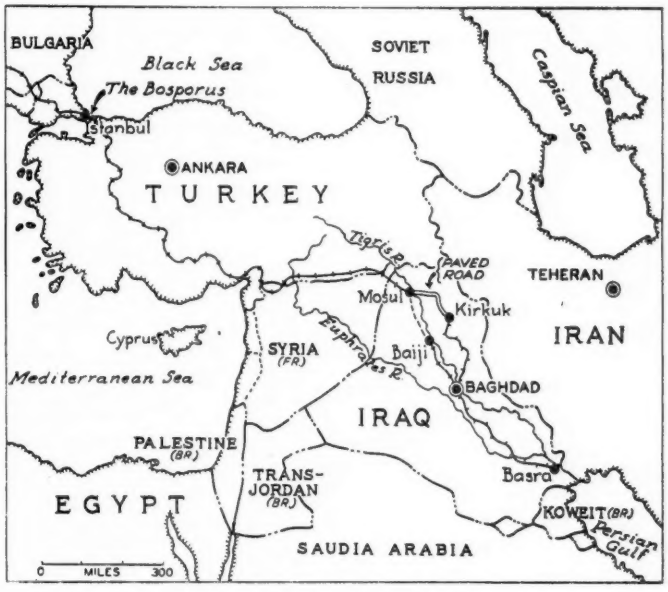
The Army High Command has been terminated by law. On 1 March 1940 the office of Commander in Chief became permanently vacated, and the duties which formerly fell to that office became the responsibility of the Chief of the General Staff, General von Werth.

(*Militär-Wochenblatt*, 8 March 1940)

IRAQ

British engineers hope to complete the laying of the remaining thirty-five miles of standard gauge track between Mosul and Baiji about 1 June 1940. At present Mosul is the terminus of the Taurus Express, a point where passengers and freight shift to busses and trucks, in which they ride on a paved road to Kirkuk, whence a narrow gauge line runs to Baghdad. The final step, which will provide the British with a direct overland route to the Orient, will be to replace the present narrow gauge line between Baghdad and Basra, an important port at the junction of the Tigris and Euphrates near the head of the Persian Gulf, with standard gauge tracks.

(*Foreign Press*)



ISTANBUL—BAGHDAD RAILWAY

ITALY

The Italian Military Service:

Service in either the Italian Army or Navy is compulsory. All men between the ages of twenty-one and fifty-five years are liable to military service. The term of service in the active army for all arms is normally eighteen months. After passing through the ranks, the men are placed on *unlimited leave* (transferred to the reserve), a status in which they remain until the age of fifty-five years.

(*Statesman's Year Book*, 1939)

Naval Improvements:

The 35,000-ton Italian battleship *Impero* was launched in Genoa 29 October after only seventeen months building time. The sister-ship *Roma* will be launched 12 June 1940.

(*Norsk Tidskrift for Sjövessen*)

The *Vittorio Veneto*, first of the four 35,000-ton Italian battleships, has recently rejoined her regular base at Trieste after three hours of trials in the Adriatic. At the development of 130,000 h.p. a speed of thirty knots was attained. It includes the following characteristics: length, 755 feet; beam, 98.5 feet; armament, nine 15-inch guns, twelve 6-inch guns, twelve 3.5-inch guns, 20 machine guns and four planes.

(*Journal de la Marine Marchande*, 9 November 1939)

The submarine *Liuzzi* was launched at Taranto 17 September. Characteristics: displacement, 1031 tons; length, 252 feet; draft, 14 feet; beam, 23 feet; armament, two 4-inch guns, four machine guns, eight 21-inch torpedo tubes; surface speed, 18 knots.

Work is being hastened to complete the new dry dock at Naples, which will be one of the largest in Europe. Characteristics: length 1119 feet; width at entrance, 131 feet; floor of dock below water surface, 43 feet. The dock will have a division wall permitting simultaneous work on two or more ships. It will cost $3,535,000.00.

(*Marine-Rundschau*, November 1939)

Italy has purchased sixteen of the twenty German vessels lying in Trieste since the outbreak of hostilities.

(*Corriere della Sera*, 6 November 1939)

Coal Imports from Germany:

Italy and Germany 13 March 1940 signed an agreement whereby Germany agrees to supply coal to Italy by rail shipments in view of the Allied sea blockade.

(*Foreign Press*)

Aerial Expansion:

The Royal Italian Air Force is to be more than doubled within the next twelve months. The Aircraft Industry and all training centers have been enlarged and all equipment modernized. Experience gained in the Abyssinian and Spanish Wars and in the Italian occupation of Albania, is being profitably used and many improvements in new airplanes now going through the aircraft factories owe their origin to the operations of the Regia Aeronautica in these countries. The expansion was announced early in February 1940 by the Under-Secretary of State for Air.

(*Via dell'Aria*)

Military Appropriations:

On 15 March 1940 the Italian Chamber of Fasces and Corporations approved an aviation budget of $170,000,000 and a special army appropriation of $416,000,000. It also agreed to permit the War Ministry to receive another $200,000,000, if necessary, during the current fiscal year.

(*Foreign Press*)

JAPAN

Cost of the War in China:

The China affair expenditure so far voted amounts to some twelve billion yen, and, if to this is added the expenditure for the new fiscal year, it will reach something like seventeen billion yen. (1 yen at this date is quoted at $0.23.)

(*The Japan Chronicle*, 8 February 1940)

Military Improvements:

In the opinion of General Hata, Minister for War, quantity in armaments is as important as quality. He claims, however, that the Army is paying special attention to the technical improvement of all arms, and that scientific research is being pushed at heavy expenditure. The War Office estimate for the next fiscal year is that the research expenditure will amount to 24,490,000 yen ($5,740,450.00), an amount which is 10,230,000 yen in excess of the ordinary expenditure.

(*The Japan Chronicle*, 22 February 1940)

Development of Armament Industries:

From 1931-1937 metal industries have increased their production 800 per cent, the machine industry 500 per cent, chemical production 350 per cent, while the textile industry, which a short time ago occupied first place, has increased only 100 per cent. At the end of 1937, the number of men employed in the metal, chemical and machine industries increased 26.2 per cent over that of the preceding year.

(*Revista Marittima*, December 1939)

New Pacific Air Services:

Japan started a regular passenger and mail service to the Japanese Mandated Islands in the South Pacific 6 March 1940. The first flight, between Yokohama and Saipan in the Marianne Islands, a distance of 1,631 miles, was completed in ten hours. After an overnight stop, the flight continued on the following day to Palau in the Pelew Islands, an added distance of 981 miles. Twenty-two survey flights have been made from Yokohama since last April in preparation for the service.

Although France has refused permission for Japanese air liners to fly over and land in French Indo-China, Japan is continuing to prepare for the Tokyo-Bangkok service. A survey flight was made recently from Tokyo by way of Canton following a wide detour to avoid French territory.

(*The Aeroplane*, 15 March 1940)

LATIN AMERICA

Rates of Exchange in U. S. Dollars, 1 April 1940:

Argentina	Peso—$0.24
Brazil	Milreis—$0.06
Chile	Gold Peso—$0.21
Colombia	Gold Peso—$0.58
Cuba	Peso—$0.88
Mexico	Peso—$0.18
Peru	Sol—$0.20
Uruguay	Peso—$0.38
Venezuela	Bolivar—$0.31

(*Foreign Exchange*)

United States Imports:	*1938*	*1939*
Argentina	$ 40,709,000	$ 61,920,000
Bolivia	865,000	2,029,000
Brazil	97,933,000	107,243,000
Chile	28,268,000	40,726,000
Colombia	49,398,000	48,983,000
Costa Rica	4,102,000	3,230,000
Cuba	105,691,000	104,930,000
Dominican Republic	5,745,000	5,824,000
Ecuador	2,584,000	3,514,000
El Salvador	5,672,000	6,957,000
Guatemala	9,529,000	10,725,000
Haiti	2,967,000	3,031,000
Honduras	5,692,000	7,031,000
Mexico	49,030,000	56,319,000
Nicaragua	2,478,000	2,902,000
Panama	3,352,000	3,582,000
Paraguay	1,356,000	1,803,000
Peru	12,813,000	13,948,000
Uruguay	4,751,000	9,375,000
Venezuela	20,032,000	23,612,000

United States Exports:	*1938*	*1939*
Argentina	$ 86,793,000	$ 71,114,000
Bolivia	5,395,000	4,512,000
Brazil	61,597,000	80,441,000
Chile	24,603,000	26,789,000
Colombia	40,862,000	51,295,000
Costa Rica	5,449,000	9,786,000
Cuba	76,331,000	81,644,000
Dominican Republic	5,690,000	6,780,000
Ecuador	3,311,000	5,900,000
El Salvador	3,526,000	4,172,000
Guatemala	6,861,000	8,574,000
Haiti	3,642,000	5,140,000
Honduras	6,292,000	5,812,000
Mexico	62,016,000	83,177,000
Nicaragua	2,807,000	4,297,000
Panama	10,165,000	12,752,000
Paraguay	644,000	675,000
Peru	16,892,000	19,246,000
Uruguay	5,060,000	5,177,000
Venezuela	52,278,000	61,952,000

(*Foreign Trade Series, Pan American Union*, February 1940)

Argentina

Japanese Trade Agreement:

Japan and Argentina effected a trade agreement 15 March 1940 whereby Japan agreed to purchase about $6,900,000 worth of Argentina raw materials in 1940—three times the total in 1939. In return, Argentina agreed to regulate the granting of import permits in order to admit Japanese cotton textiles, chemicals, heavy industrial machinery and other manufactured goods.

(*Foreign Press*)

Brazil

Immigration for American Countries:

By a new ruling, effective 27 January 1940, 3,000 nationals of each American nation will be allowed entry to Brazil yearly.

(*Foreign Press*)

Chile

The Chilean naval authorities have just put into effect a ruling which requires: (1) All ships in Chilean waters and ports are at all times subject to the orders of the naval authorities. (2) In addition to the usual documents, a written declaration concerning the nature of the ship will be sent to the authorities by the consul having visaed the papers. (3) Communications with belligerent ships are forbidden except in cases of calls for help or in cases requiring it for the safety of navigation. (4) All foreign merchantmen entering Chilean waters will seal the doors and ports of the radio rooms and report same to the authorities. (5) Foreign commercial ships will not be able to obtain any fuel in excess of their normal amount necessary for the ship to return directly to her own country, and, if the agents can give a satisfactory guarantee on this matter, the fuel required for the voyage will be furnished to her. (6) Any ship violating these rules for neutrality as well as all vessels belonging to the same firm will be refused all fuel.

(*Journal de la Marine Marchande*, 7 December 1939)

Colombia

In 1934 the Colombian government engaged 20 officers and 240 members of the British Reserve staff in order to make up their naval personnel. This number has been gradually reduced, so that in January 1939 there remained only seven officers and 25 enlisted men. By that time the effective members of native personnel had reached 1500 and a naval base and shipyard had been constructed. The contract with the British instructors terminated 8 February 1940.

(*Revista de Marina*, September and October 1939)

Costa Rica

Costa Rica 26 January 1940 accepted the general terms of the project for canalization of the San Juan del Norte River as proposed by Nicaragua.

(*Foreign Press*)

PANAMA

Traffic by Nationality of Vessels (over 300 net tons) for February 1940:

Nationality	*Tolls*	*Tons of Cargo*
British	$330,818.22	398,714
Chilean	13,538.70	10,162
Colombian	732.24	690
Danish	49,580.10	58,165
Finnish	4,641.30	8,440
French	26,165.70	25,203
Greek	26,382.78	41,926
Honduran	9,936.00	4,595
Italian	21,592.80	23,150
Japanese	97,485.12	128,897
Latvian	2,871.00	5,000
Mexican	648.00	694
Netherland	41,537.70	34,896
Norwegian	183,069.72	258,121

Nationality	*Tolls*	*Tons of Cargo*
Panamanian	35,032.32	40,792
Peruvian	470.88	—
Rumanian	3,140.10	6,181
Spanish	6,948.90	15,290
Swedish	29,939.58	40,502
United States	679,981.14	1,021,656
Yugoslav	2,903.76	—
TOTAL	$1,567,416.06	2,123,574

(*The Panama Canal Record*, 15 March 1940)

LATVIA

A Latvian military delegation arrived in Moscow 25 January 1940.

(*Foreign Press*)

NETHERLANDS

Holland Strengthens its Defenses at Curaçao:

Curaçao, forty miles long with an area of 210 miles miles, contains some of the largest oil refineries in the world. It is the principal storage and shipping center for the rich oil fields of Venezuela. Willemstad, the capital, has one of the finest and largest harbors in the West Indies. Almost half of Curaçao's entire population of 62,000 live in this city. The defense of the island has been greatly strengthened with the mounting of antiaircraft guns and an increase of the garrison. Volunteers are now required to do full time duty. A warship and two submarines have recently arrived at Willemstad. The effects of several experimental blackouts have been studied by aerial observation.

(*Foreign Press*)

Naval Improvements:

The submarine *O-21*, just launched at Flushing, is the first to be launched of a series of seven under construction in different Dutch yards with the following characteristics: length, 255 feet; beam, 20.5 feet; surface draft, 13 feet; surface displacement, 987 tons; submerged displacement, 1205 tons; surface speed, 19 knots; submerged speed, 9 knots; armament, one 3½-inch gun, one twin mount of 1.6-inch rapid-fire guns and eight torpedo tubes.

(*Journal de la Marine Marchande*, 9 November 1939)

For the protection of the Dutch East Indies it is proposed to lay down three ships of 27,000 tons each, with a speed of 33 knots and a main battery of nine 11-inch guns. Their construction, however, is being subordinated to the modernization of the port of Soerabaya.

(*Journal de la Marine Marchande*, 23 November 1939)

The destroyers *Tjerk Hiddes* and *Gerard Callenburg* were launched at Rotterdam 12 October 1939. Both vessels are of 1628 tons each. 45,000 h.p. and can attain a speed of 36 knots.

(*Norsk Tidsskrift for Sjövesen*, December 1939)

A mine layer of 555 tons has been launched at Bolnes and a tanker of 6900 tons is undergoing construction.

(*Sjöväsendent*, December 1939)

The new gunnery school ship *Van Kinsbergen*, displacing 1760 tons, left Nieuwediep at the beginning of October 1939 for the Dutch East Indies.

(*Le Yacht*, November 1939)

Submarine Lost:

The submarine O-11 was lost 6 March 1940 when it sank after being rammed by a tug off Helder, Netherlands. All but three of the thirty men on board managed to escape.

(*Foreign Press*)

Translantic Air Service:

The Dutch Government has requested the United States to grant permission for the Royal Dutch Air Lines to operate a direct North Atlantic service between Holland and the United States. According to reports the service is expected to start sometime in 1942.

(*The Aeroplane*, 16 February 1940)

Antitank Defense:

The Dutch regulations on this subject do not contemplate the employment of motorized antitank guns as a means of *security on the march*, the latter being provided by scout cars.

In the *defensive* the principal mission of the antitank guns is the annihilation of the hostile tanks before they reach the friendly main line of resistance. The Germans believe that the interval of 330 yards between guns, as laid down in the Dutch regulations, is too great, and suggest a grouping of the three guns of a platoon that would provide for all-around defense, the depth as well as the breadth to be limited to 330 yards. The regulations also discourage the parceling of the antitank battalion assigned to division reserve. It is considered desirable to reinforce this battalion with a motorized machine-gun company and motorized engineers equipped with mines.

In the *attack*, as well as the counterattack, it depends on the situation and the terrain whether the antitank company of the infantry regiment should be employed as a single unit, or whether it should be broken up and the parts attached to the battalions. In the offensive, the antitank battalion also forms a part of the division reserve.

(*Militär-Wochenblatt*, 2 February 1940)

LITHUANIA

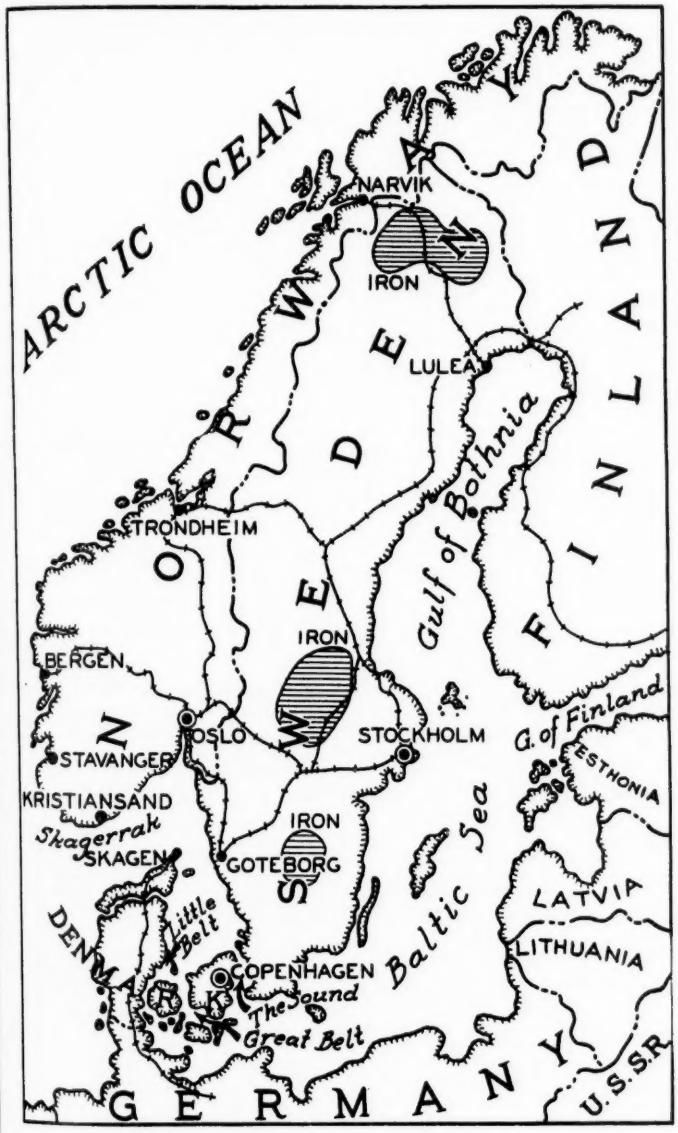
The Lithuanian Government has decided to fix the length of compulsory military service at eighteen months. Formerly, it was twelve months for infantry and fifteen months for other branches.

(*La France Militaire*, 24 February 1940)

NORWAY

The Kingdom of Norway covers an area of 124,964 square miles and has a coast line, including her numerous

fjords and indentations, of approximately 12,000 miles. An almost continuous chain of islands extends along the coast from the Arctic Ocean to the North Sea, forming a protective corridor for the shipment of Swedish iron ore from the iron port of Narvik, Norway to the seaports of Germany. The population is slightly less than 3,000,000; the population of Oslo, Norway's largest city and capital, is 253,124.



NORWAY'S STRATEGIC COASTLINE

The nation's livelihood depends mainly on agriculture, forestry, minerals and metals, fisheries, manufacturing and navigation. During the World War Norway lost half her merchant vessels and some 2,000 sailors. Now her motor ship fleet ranks second in the world. She buys her ships from England and Germany much cheaper than she can build them herself.

In 1937 she mined 1,048,300 tons of pyrites and 1,075,558 tons of iron and titaniferous ores. In the same year she also produced 145,154 tons of ferro-alloys and 36,084 tons of pig iron. (See Sweden for comparative figures.) Unlike Sweden, Norway is not favored by the happy combination of iron and coal.

The Government owns and operates 2,270 miles of railway; 212 miles are operated by private interests. There are four railway routes between Norway and Sweden, but there is no line connecting the northern part of the country with the south, hence the importance of the coastal corridor.

(*Statesman's Year Book and National Geographic Magazine*)

PORTUGAL

Organization of the Army:

Infantry:

5 inspectorships
19 mobilization centers
19 mobilization districts
1 practical school for infantry

Troops:

16 infantry regiments
10 chasseur battalions
3 machine-gun battalions
3 independent battalions for the adjacent islands
1 tank battalion
Range fields at Lisboa and Oporto
Disciplinary companies.

In time of peace the infantry regiments are occupied with administrative and mobilization functions and devoted to the training of recruits. In 1939 these units trained approximately 14,500 recruits over a training period of five months.

Artillery:

3 inspectorships
1 coast artillery command attached to the Military Region of Lisbon
1 coast artillery training center attached to the practical school for artillery
2 depots of matériel
7 mobilization centers for field artillery attached to the field artillery regiments
1 park mobilization company
Mobilization centers for antiaircraft artillery

Troops:

3 light artillery regiments (horse-drawn)
1 light artillery regiment (automobile)
1 mountain artillery regiment
1 independent group—mountain artillery
2 heavy artillery regiments
1 coast artillery regiment
1 group of coast artillery for mobile defense (automobile)
1 group of coast submarine defense
2 independent batteries for coast defense
3 groups of antiaircraft artillery
1 practical school for artillery.

The light artillery regiments are territorial units specially devoted to the training of recruits and to the mobilization of artillery units. In 1939 these units trained approximately 6,000 recruits.

(*Foreign Military Notes*)

Twelve Grumman G-21B flying-boats have been ordered by the Government of Portugal from Gillies Aviation Corporation, U.S.A. The machines are to be used for coastal patrol.

(*The Aeroplane*, 2 February 1940)

RUMANIA

The steps leading up to the union of Bessarabia with Rumania may be summarized as follows:

1. Period under Ottoman suzerainty as part of the principality of Moldavia covering several centuries prior to 1812.

2. Ceded to Russia by the Russo-Turkish treaty of 1812.

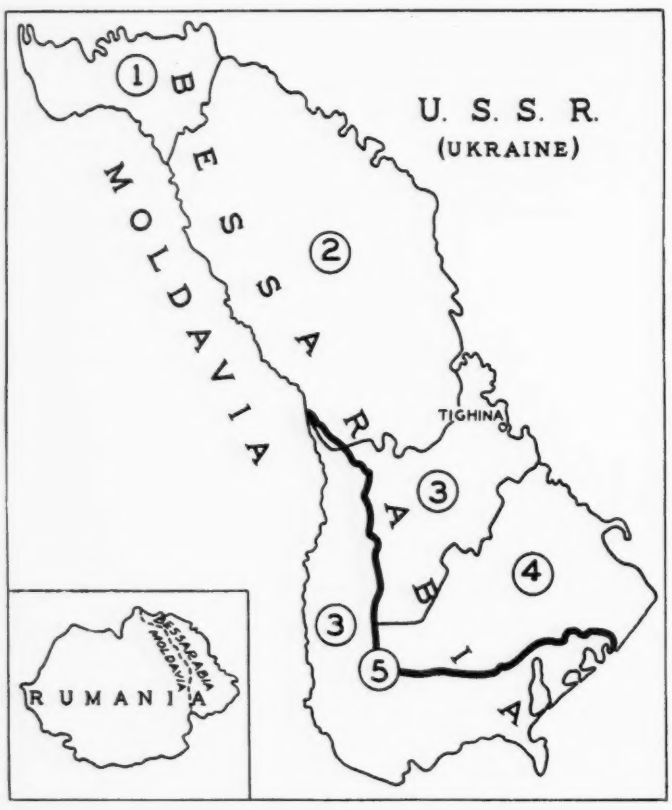
3. Portion west and south of the heavy line 5 returned to Moldavia and formed part of the united principality of Rumania by the Treaty of Paris in 1856.

4. This portion (west and south of the heavy line 5) returned to Russia by the Congress of Berlin in 1878.

5. Ukraine separated from Russia in 1917.

6. Bessarabia voted 27 March 1918 to unite with Rumania.

7. Union with Rumania recognized by the Treaty of Paris, 28 October 1920, ratified by Great Britain 1 January 1921, Rumania 7 April 1922, France 11 March 1924 and Italy 8 March 1927—but all over the protest of Soviet Russia.



AREAS SHOWING DISTRIBUTION OF POPULATION BY NATIONALITIES IN BESSARABIA.

1. Ruthenians more than any other single nationality.
2. Rumanians more than all other nationalities combined.
3. Rumanians more than any other single nationality.
4. Little Russians more than any other single majority.

There is no doubt but what Bessarabia would be a territorial asset to Russia, particularly as a buffer between the Balkans and the rich Ukraine and as a protection to the Odessa-Lwow Railway. It would strengthen her control of the Black Sea and furnish an additional barrier to her Caucasian oil fields.

In 1897 only 19.4 per cent of the population over six years of age were literate; by 1930 this number had been increased to 38.1 per cent, while in Rumania as a whole the same index of literacy was 57 per cent.

Oil:

During the oil crisis Rumania took hurried steps to mobilize her army, ordering 200,000 reservists to report for service 1 March 1940, thereby raising the total number of men under arms to 1,600,000 on that date. Work on the section of the Carol II Line along the Dnieper River was accelerated and Tighina became one of the best fortified towns in Bessarabia. On 1 March 1940 an oil production program was adopted to increase production by 15,000,000 barrels. When the ice had broken up, the first fleet of oil-laden barges to move up the Danube to Germany comprised a total of thirty loaded with 18,000 tons of oil—about one-seventh of the monthly German quota from Rumania.

Foreign Trade:

During the month of January 1940, Rumania's exports to Germany amounted to $4,117,377; to Great Britain $3,953,724. Her imports to Germany were valued at $4,576,968; to Great Britain $550,467.

Frontier Revisions:

Italy has prevailed upon Hungary to postpone her demands for a revision of her Rumanian frontier until after the European crisis has been definitely settled. Rumania has promised Bulgaria that she will revise her frontier in the Dobrudja region as soon as the present war is over.

(*Foreign Press*)

RUSSIA

Merchant Marine:

According to the *National Register of Navigation,* published recently by the Russian Central Bureau of Registry of Leningrad, the Soviet-Russian Merchant Marine is composed of 664 vessels of different categories. There are practically no large ocean liners and only 303 vessels are between 1000 and 5000 tons, 56 of which are motor ships. Of this classification about 100 were built in British yards and their average age is 28 years, one being actually 58 years old. 33 ships, of which 20 are motor ships, fall in the classification between 5000 and 8000 tons. Except for a British ship that has been converted into a cable layer, there are no vessels in excess of 8000 tons. Of the total 664 ships only one-half are ocean going. The remainder are small coastal vessels including 150 large tugs, several of which were recently built in Germany. Among the craft of less than 1000 tons, the great majority are of British construction; certain ones were built prior to 1870. The ultra-modern ships of the Soviet merchant fleet are the two mixed cargo vessels *Viiacheslav Molotof* and *Josef Stalin,* now being completed in Holland. These ships of 7500 tons will be propelled by two turbo-electric units, developing 14,000 h.p. and capable of a speed of 20 knots. They will be able to carry 512 passengers, most of which will receive only second and third class accommodations.

(*Journal de la Marine Marchande,* 30 November 1939)

The Foreign Trade Monopoly:

On 22 April 1918 the Soviet Union established its monopoly of foreign trade, a policy which is regarded by Soviet

leaders as "one of the immovable bases of the platform of the Soviet government." The chief object of the foreign trade monopoly is to make it possible to satisfy the needs of the country at the lowest cost, in anticipation of the ultimate possibility of manufacturing all goods required by the people within the country, and limiting imports to indispensable raw materials and new or improved machinery and equipment. An illustration of this is the importation of tractors as well as the machinery with which to manufacture them; when the Soviet plants were able to manufacture these machines, their importation ceased.

Exports formerly of great importance have been reduced to negligible proportions: increased supplies of vegetable oil, butter, eggs, fish, caviar, canned goods and fruits are now available for domestic consumption instead of export. Items still exported, such as furs, flax and wood products, are not sold in crude form, but in manufactured condition. To the list of new export items may be added wire, rails, rolled shapes, textile machinery, freight cars, machine tools, and large quantities of chemical fertilizers, which were formerly an import item. The only industrial export item of which shipments have been reduced is petroleum products: here the domestic demand has made it impossible to assign the former quantities for export purposes.

(*Commerce Reports*, November 1939)

SPAIN

The public works project of improving the ports and establishing aids to navigation is estimated at approximately $72,200,000. Most of this will be spent in improving the ports, including: Bilbao, with the continuation of the work of construction of an inner port; Pasajes, with the extension of the quays; Santurce, Santander, Musel, Vigo, Ttuelva, Cadiz, with the completion of dry docks; Ceuta, Melilla, Palma de Majorca, Canary Islands. The project also includes the dredging of the Guadalquivir. The aids to navigation include the construction of lighthouses in the Canaries, Balearics, and at Capes Finisterre, Salvora, and Silleiro.

(*Journal de la Marine Marchande*, 16 November 1939)

Reorganization of the Legion:

The Legion is to consist of the following units:

1. Inspectorship, consisting of headquarters, band, and recruiting center.

2. Three *Tercios*, each consisting of headquarters, 1 signal, 1 pioneer and 1 depot platoons, and a variable number of *banderas* (battalions). The 1st *Tercio* will have five *banderas* and the 2d and 3d *Tercios* will consist of three *banderas* each.

The Inspectorship of the Legion will be stationed at Ceuta (Spanish Morocco), except the recruiting center which will be established in Madrid.

The three *Tercios* will be stationed as follows:

1st *Tercio*—Tauima (Melilla),
2d *Tercio*—Riffien (Ceuta),
3d *Tercio*—At some place still undesignated in the Larache Zone.

Each *Tercio* will be commanded by a colonel who will exercise the functions assigned to the commanders of independent units.

(*Foreign Military Notes*)

SWEDEN

Sweden covers an area of 173,347 square miles. According to the latest census its population is 6,284,722. With the exception of 33,929 Finns, 6,481 Lapps and a few thousand of other racial classifications, her people belong to the Scandinavian branch of the Aryan family.

In 1937 this country produced 14,952,549 tons of iron ore and 647,593 tons of pig iron. The iron ore exported amounted to 13,965,000 tons; pig iron 89,864 tons (compare with figures listed under *Norway*). Sweden also produces silver and lead, copper, zinc and manganese. In the same year she produced 7.7 tons of lead, 11,110 tons of copper, 151.8 tons of zinc and 25.3 tons of tin. One-third of Germany's supply of essential iron ore is imported from Sweden. It is considered the best iron ore in Europe. Germany has been able to produce a third of its own needs. The other third it has been gathering up from domestic scrap and from Belgium, Luxemburg and Norway. The Swedish ore, produced mainly north of the Arctic Circle, has been shipped 175 miles to the Norwegian port of Narvik (see map of the Scandinavian peninsula under *Norway*) and thence through the Norwegian corridor to Germany. The allied blockade of the Norwegian route has been a serious menace to Germany as the Gulf of Bothnia is expected to be ice-bound until late spring. If the ore cannot be shipped from Norway it must undergo a long and expensive rail haul to one of the southern Swedish ports. In 1936 there were 1,239 factories engaged in the manufacture of iron, steel and metal products and employing a total of 35,795 workers. Coal is mined in the southern part of the country to some extent (460,465 tons in 1937), a facility which contributes to the manufacture of steel and finished metal products.

During the Russo-Finnish War, according to recent estimates, Sweden loaned Finland $25,000,000 in cash and materials valued at $70,000,000.

(*Statesman's Year Book* and *Foreign Press*)

Naval Improvements:

The Swedish destroyer *Malmo*, ordered in October 1936 has been delivered by the Karlskrona Navy Yard. Her characteristics include: displacement, 1080 tons; 32,000 h.p.; contract speed, 39 knots; armament, three 4.7-inch guns, three double barreled 1-inch antiaircraft guns and two triple torpedo tube mounts, and a gun for throwing depth charges and mines.

On 1 November the Riksdag authorized an expenditure of $5,520,000 for the immediate construction of one destroyer and eighteen mine sweepers.

(*Journal de la Marine Marchande*, 9 November 1939)

In the National Defense Budget 1939-1940, $16,600,000 out of $56,700,000 were assigned to the Navy. $480,000 will be used for modernization of three coast guard cruisers of 7000 tons each and $563,000 for new construction. The new

program comprises the construction of two cruisers, three submarines, four 40-knot torpedo boats and two submarine tenders. The entire Swedish Fleet actually consists of ten old coast guard ships, one cruiser, four scout vessels, twelve destroyers, sixteen submarines, one mine layer and a certain number of small craft. The number of personnel in active service is about 7000.

(*Rivista Marittima*, December 1939)

Air Force Improvements:

The Swedish Government has requested an appropriation of approximately $18,000,000 for the purpose of organizing two new fighter wings, one for South Sweden, the other for the West; and for two reconnaissance squadrons for the Army and Navy. According to reports, a Swedish mission in the United States has contracted for 144 new Vultee fighters, at a cost of about $8,000,000.

The present Swedish Air Force consists of:

Two Medium Bomber Wings (Junkers Ju 86 and Handley-Page HP 52 Hampden).

Two Light Bomber Wings (Hawker Hart and Northrop 8A).

One Fighter Wing (Gloster Gladiator, Jaktfalken and Bristol Bulldog Mk. IIA).

One Army Cooperation Wing (Fokker CV-D and CV-E, Breguet 694 and Fieseler Fi 156 Storch).

One Naval Cooperation Wing (Hawker Osprey, Heinkel He 5 and Heinkel He 115).

The Bomber Wings and Army Cooperation Wing consist of a headquarters and three squadrons of 12 airplanes each, 36 airplanes to a wing. The Fighter Wing consists of headquarters and three squadrons of 15 airplanes each, making 45 machines in the wing. The Naval Cooperation Wing has 32 airplanes and consists of headquarters, two torpedo and reconnaissance squadrons of 12 machines each, and one observation squadron of eight airplanes for the aircraft-carrying cruiser *Gotland*.

In November 1939 it was reported that Sweden had ordered 80 Seversky airplanes.

(*The Aeroplane*, 8 March 1940)

SWITZERLAND

The Army Bicycle and its Equipment:

As cycling in Switzerland is general, much importance is attached to cyclists as combat units. The standard army bicycle is constructed to withstand the strain of rugged service. Much emphasis is laid on training in cross-country cycling and riding over and under obstacles, both uphill and downhill.

The pack, consisting principally of one-half of a shelter tent, overcoat, one day's ration and an extra pair of shoes, is slung from in front of the handle bars. The shelter tent may be used as a poncho. The automatic rifle is carried in a rack under the long horizontal bar, the butt projecting to the rear behind the seat. This prevents any other load being carried in the rear of the bicycle by the automatic rifleman. Riflemen carry their rifles slung over the shoulder, their loads include ammunition for the automatic rifle.

One bicycle, loaded with a repair kit and spare parts, is assigned to each section.

Cavalry Remount Depot:

The Cavalry Remount Depot in Bern is engaged constantly in the training of 2000 well-bred horses, purchased in Ireland. They are issued to the service gradually as they become qualified for field service. Approximately 800 enlisted men are on duty for the care and training of these remounts. When the Swiss cavalryman is issued a horse in time of peace he is permitted to take it to his home and work it.

There is no breeding of army horses in Switzerland because of lack of proper pasturage areas.

The 47-mm Antitank Gun:

Recent demonstrations with this weapon indicate it to be a very mobile and accurate weapon. The gun and trail can be drawn by one animal or small truck. It can be packed on animals in three separate loads. It weighs approximately 630 pounds and can be manhandled for short distances. It is claimed to be effective up to 5000 meters. This weapon has a double spade split trail. It can be stripped and assembled very rapidly.

In training the gun crew there is much stress on speed in manipulation, in issuing fire orders rapidly and clearly, in dispersing and taking cover quickly.

(*Foreign Military Notes*)

The Swiss Military Service:

Military service in Switzerland is compulsory, with few exceptions except for physical disability. Those excused or rejected pay certain taxes in lieu of service. Liability extends from the eighteenth to the end of the sixtieth year. The first twelve years are spent in the first line, called the *Auszug*, or *Elite;* the following eight are spent in the Landwehr and the remaining eight in the Landsturm. The cavalry service, however, is eleven years in the Auszug and twelve in the Landwehr. The Landsturm includes only men who have undergone some training. The unarmed Landsturm comprises all other males between twenty and thirty years of age, men whose services can be made available for non-combatant duties of any description.

(*Statesman's Year Book*, 1939)

Border Defense:

The Winkelreid defense line lies along the Rhine facing the bridge leading over the river into Germany at Constance. At this point the line consists of elaborate steel and concrete forts. Kreuzlingen is well fortified with pillboxes at strategic street corners and barbed wire ready to be strung across the streets. Just outside Kreuzlingen there is an antitank barrier consisting of steel rails laid in the fields, lines of deep trenches and a number of isolated machine-gun nests. The fortified zone extends along the entire frontier, protecting Basel which lies in the strategic Belfort gap.

(*Foreign Press*)

TURKEY

National Defense:

Turkey's peacetime army consists of 20,000 officers and 198,000 men organized in ten army corps, which are grouped

into three armies. Each corps includes two infantry divisions, a regiment of cavalry, a regiment of heavy artillery, a battalion of engineers, a transportation battalion and a motor train battalion. Each infantry division includes three regiments of infantry and one regiment of light artillery.

In addition to the ten army corps, there are five cavalry divisions, three mountain brigades and one brigade of fortress infantry.

The 400 planes and 8,000 men of the Turkish Air Service are organized in three regiments, each regiment being composed of two reconnaissance groups and one pursuit group.

In the event of war it is believed that Turkey could mobilize a force of two million men, including countless bands of *Tchites* or irregulars.

(*La France Militaire*, 15 February 1940)

YUGOSLAVIA

The Yugoslavian Navy has recently acquired the torpedo-boat *Ljubljana*. The coast guard cutter *Beli Orao* has been taken over by a Yugoslavic crew.

(*Marine-Rundschau*, December 1939)

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SPANISH CIVIL WAR, 18 JULY 1936—28 MARCH 1939

CASUALTIES SUFFERED BY THE NATIONALIST ARMY

According to recent figures received from reliable sources, the Spanish Nationalist Army suffered the following casualties:

Killed in action	70,000
Wounded	353,000
Disabled or otherwise severely wounded	50,000
Sick (taken from number registered in military hospitals)	736,000
Deaths from illness or disease	70,000

The heaviest losses were sustained by the Legion. The strength of its 18 *Banderas* (battalions) totalled some 18,000 men, a figure which was greatly exceeded by the number of casualties:

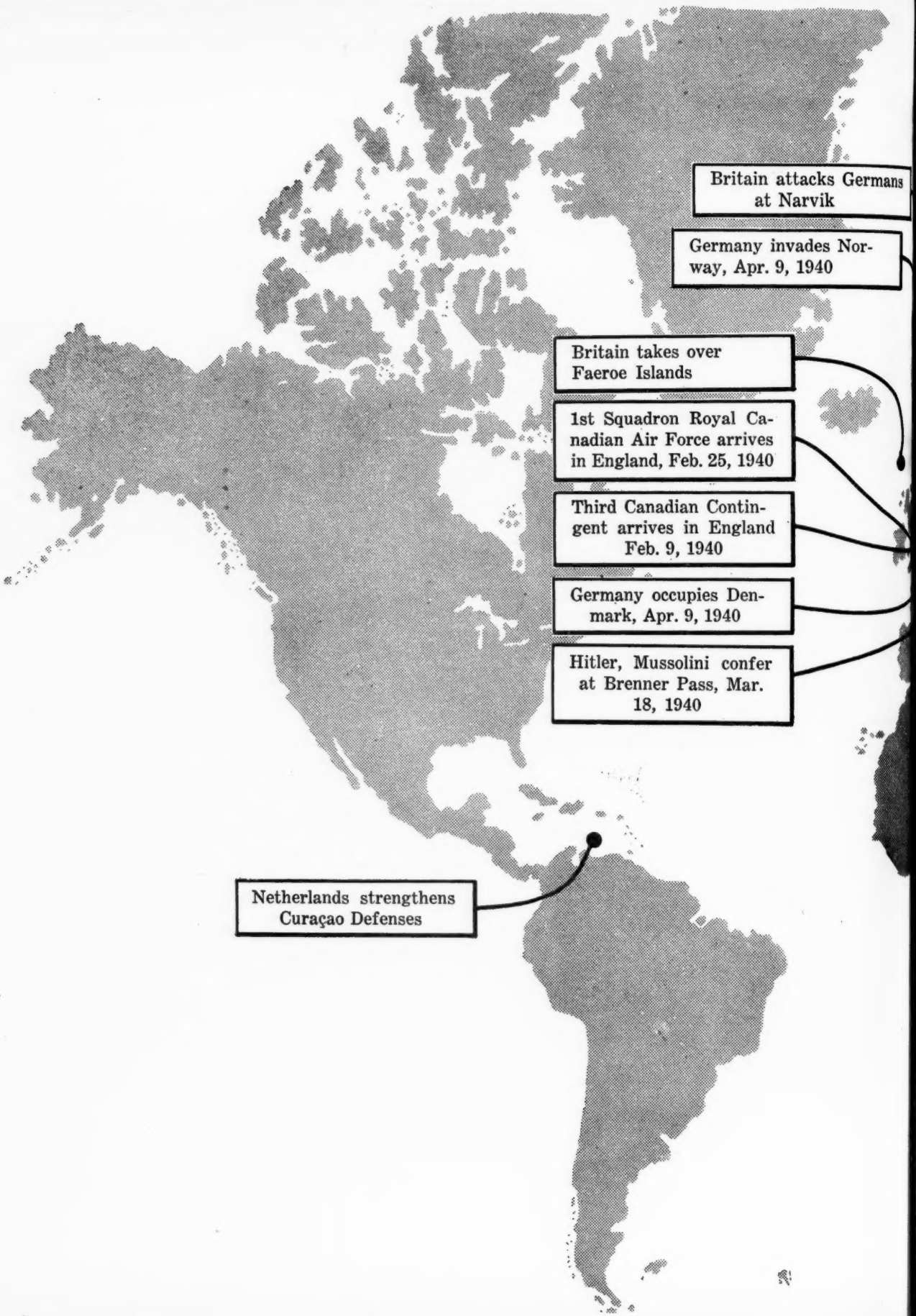
Killed in action	7,614
Missing	776
Wounded	28,972

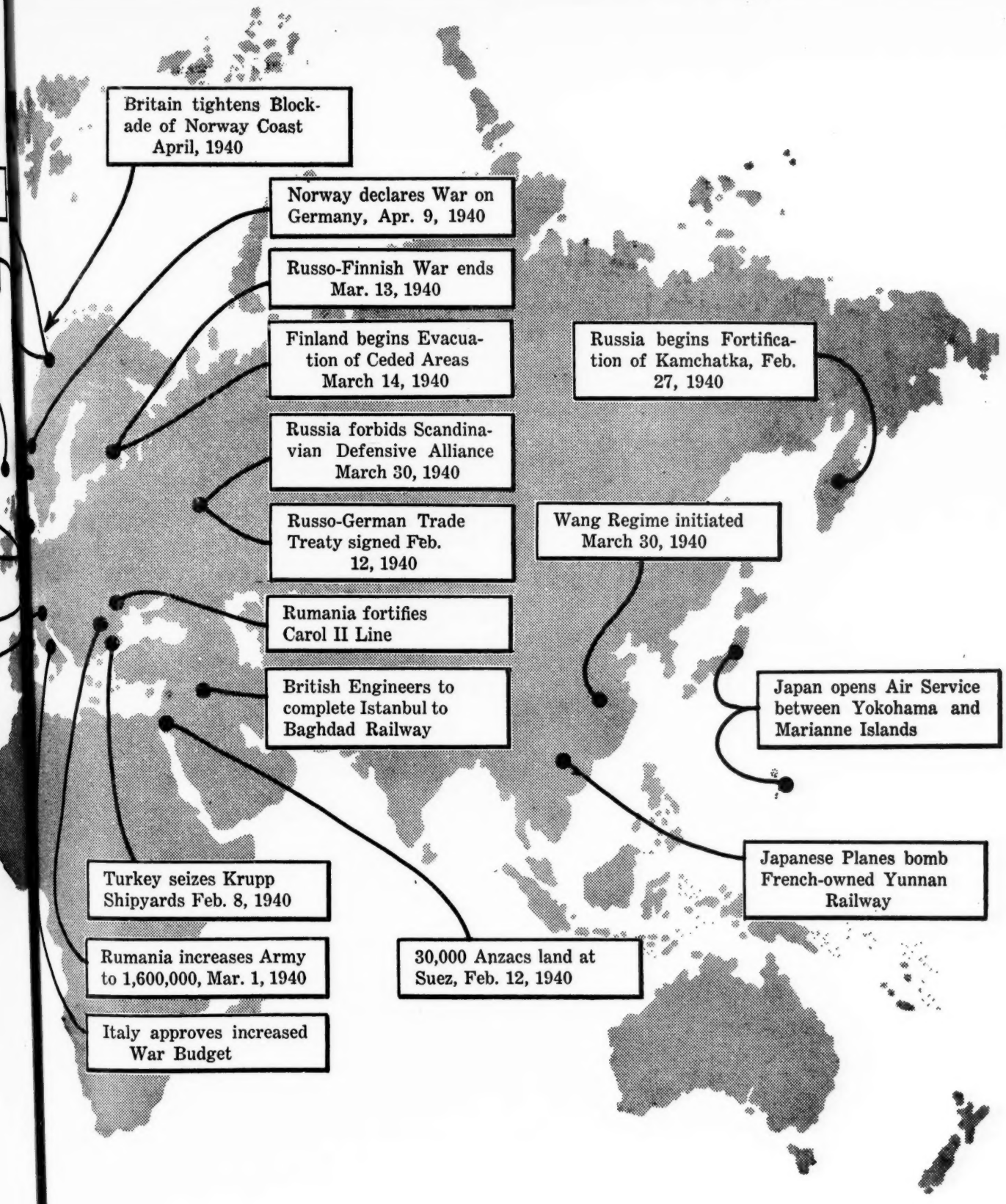
The 4th *Bandera* (strength 725 men) alone suffered about 10,000 casualties.

The distribution by arms and services of the total number of disabled or otherwise severely wounded is given as follows:

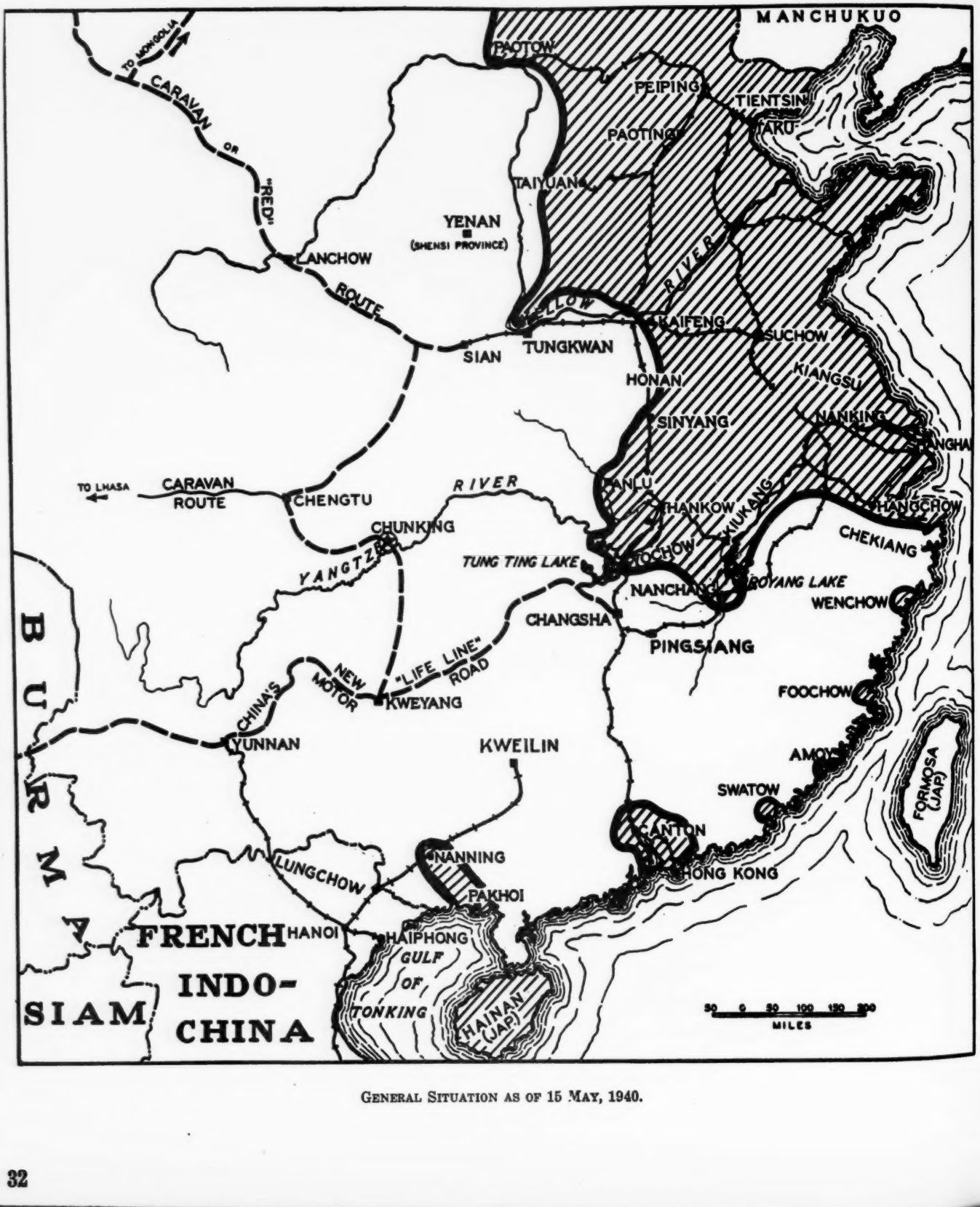
Infantry	16,461
The Legion	2,914
Artillery	1,254
Moroccan troops (European personnel only)	1,093
Cavalry	401
Engineers	999
Quartermaster	154
Medical	225
Aviation	47
Militia	5,200

The above list does not appear to include the Moorish personnel which, together with the Legion, bore the brunt of the campaign. As only a small percentage of Europeans served in this organization, it can readily be inferred that the percentage of casualties among the Native Troops was very high.

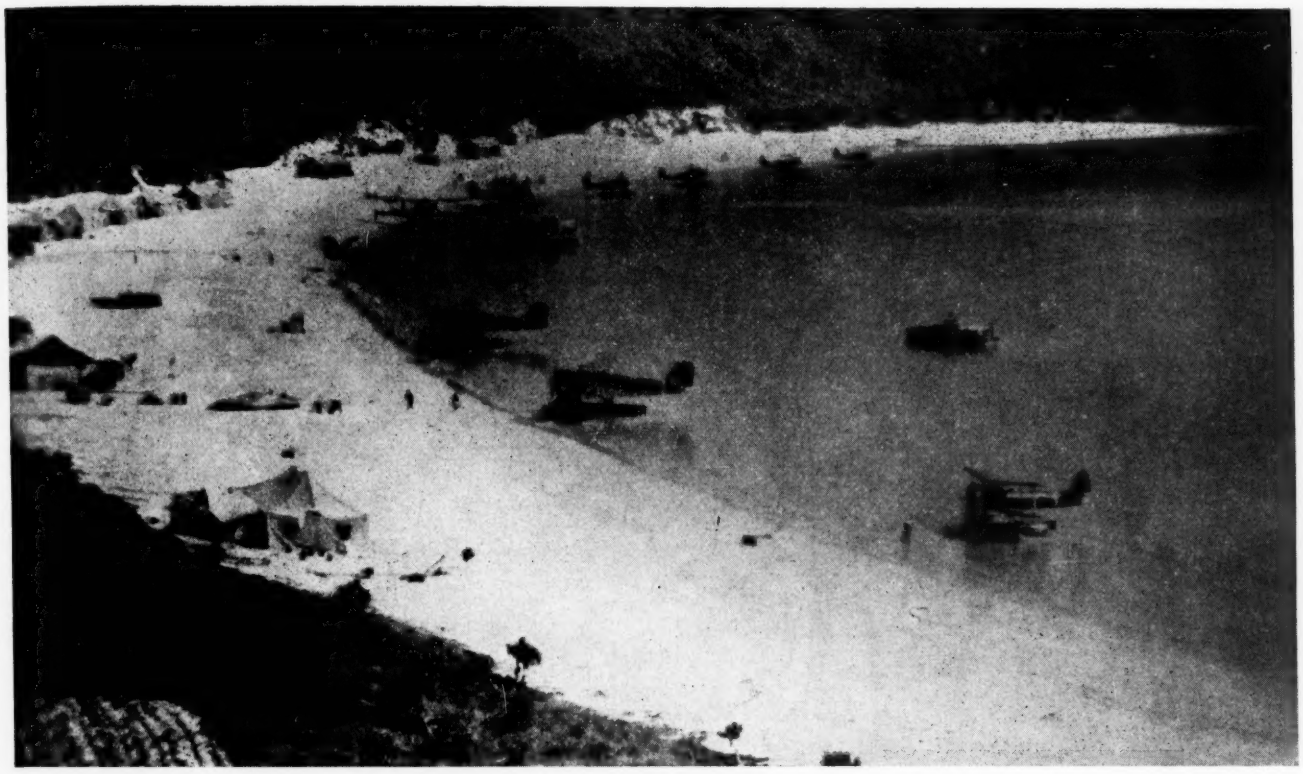

Britain attacks Germans at Narvik
Germany invades Norway, Apr. 9, 1940
Britain takes over Faeroe Islands
1st Squadron Royal Canadian Air Force arrives in England, Feb. 25, 1940
Third Canadian Contingent arrives in England Feb. 9, 1940
Germany occupies Denmark, Apr. 9, 1940
Hitler, Mussolini confer at Brenner Pass, Mar. 18, 1940
Netherlands strengthens Curaçao Defenses


Britain tightens Blockade of Norway Coast April, 1940
Norway declares War on Germany, Apr. 9, 1940
Russo-Finnish War ends Mar. 13, 1940
Finland begins Evacuation of Ceded Areas March 14, 1940
Russia begins Fortification of Kamchatka, Feb. 27, 1940
Russia forbids Scandinavian Defensive Alliance March 30, 1940
Russo-German Trade Treaty signed Feb. 12, 1940
Wang Regime initiated March 30, 1940
Rumania fortifies Carol II Line
British Engineers to complete Istanbul to Baghdad Railway
Japan opens Air Service between Yokohama and Marianne Islands
Turkey seizes Krupp Shipyards Feb. 8, 1940
Japanese Planes bomb French-owned Yunnan Railway
Rumania increases Army to 1,600,000, Mar. 1, 1940
30,000 Anzacs land at Suez, Feb. 12, 1940
Italy approves increased War Budget

The Sino-Japanese War



General Situation as of 15 May, 1940.



Wide World Photo.

JAPANESE AIRCRAFT AT AN UNDISCLOSED BASE AWAIT ORDERS TO TAKE TO THE AIR FOR BOMBING OPERATIONS IN SOUTHERN CHINA

The Sino-Japanese War

BY LIEUTENANT COLONEL E. M. BENITEZ, *Coast Artillery Corps*

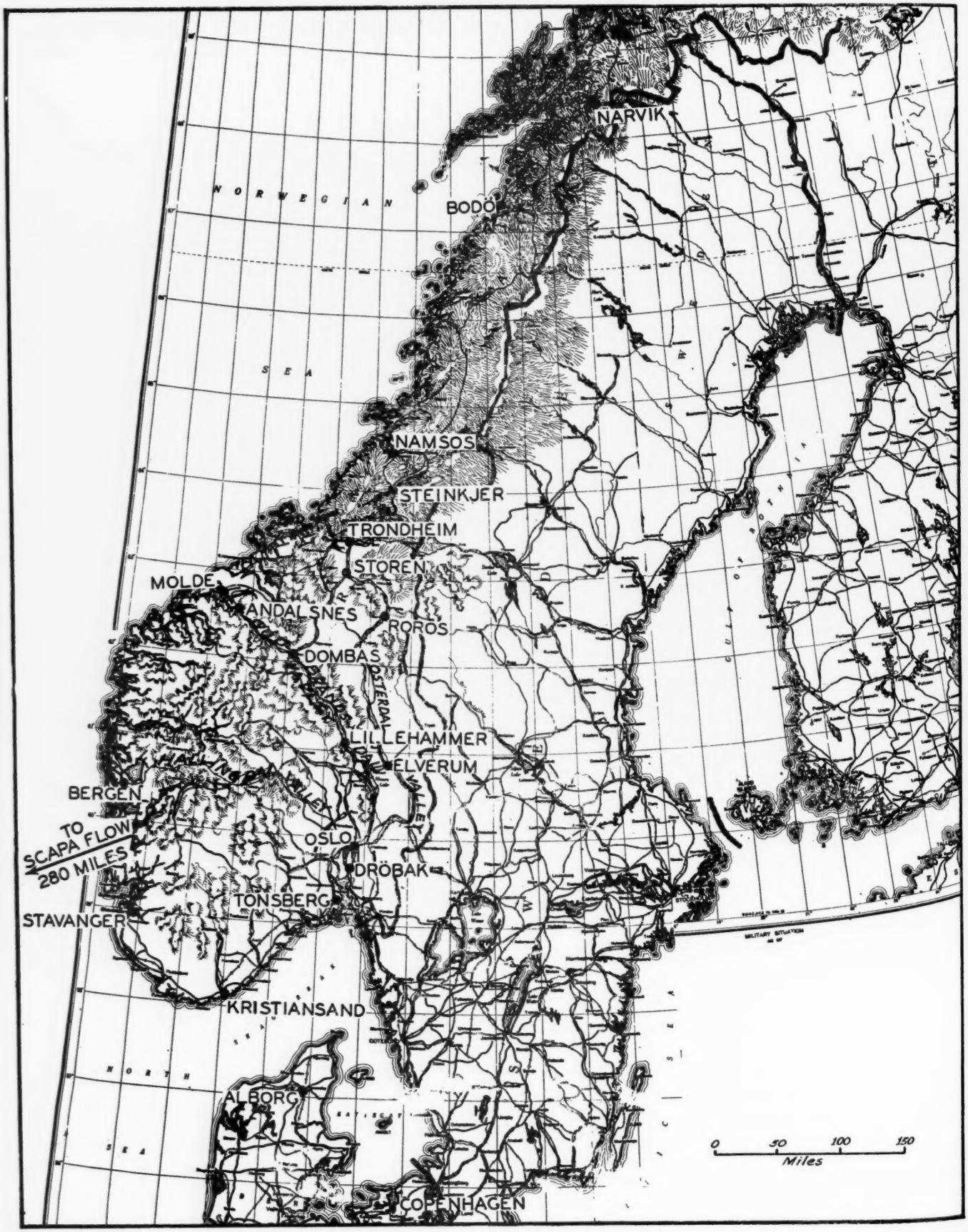
The war in China appears to have reached a virtual stalemate. The great offensives of Japan seem to be over and recent activities have consisted mainly of "mopping-up" operations in areas that were supposed to have been cleared of enemy forces. The repeated failure to annihilate the Chinese troops indicates that Japan will be engaged in this type of operations for years to come.

The Chinese armies, probably due to lack of artillery, aviation and supplies, have shown themselves incapable of vigorous offensive action. They have lost important centers —like Canton and Nanning—without putting up stiff resistance and afterwards have tried in vain to recapture them. Nevertheless, it can be said that in the military field, China shows steady, if slow progress. Today, Chinese troops are better trained, better led and better equipped than they were at the opening of the hostilities. China has an almost inexhaustible reserve of manpower and could mobilize 10,000,000 men; however, she can hardly supply even the armies now in the field. Therein lies her weakness.

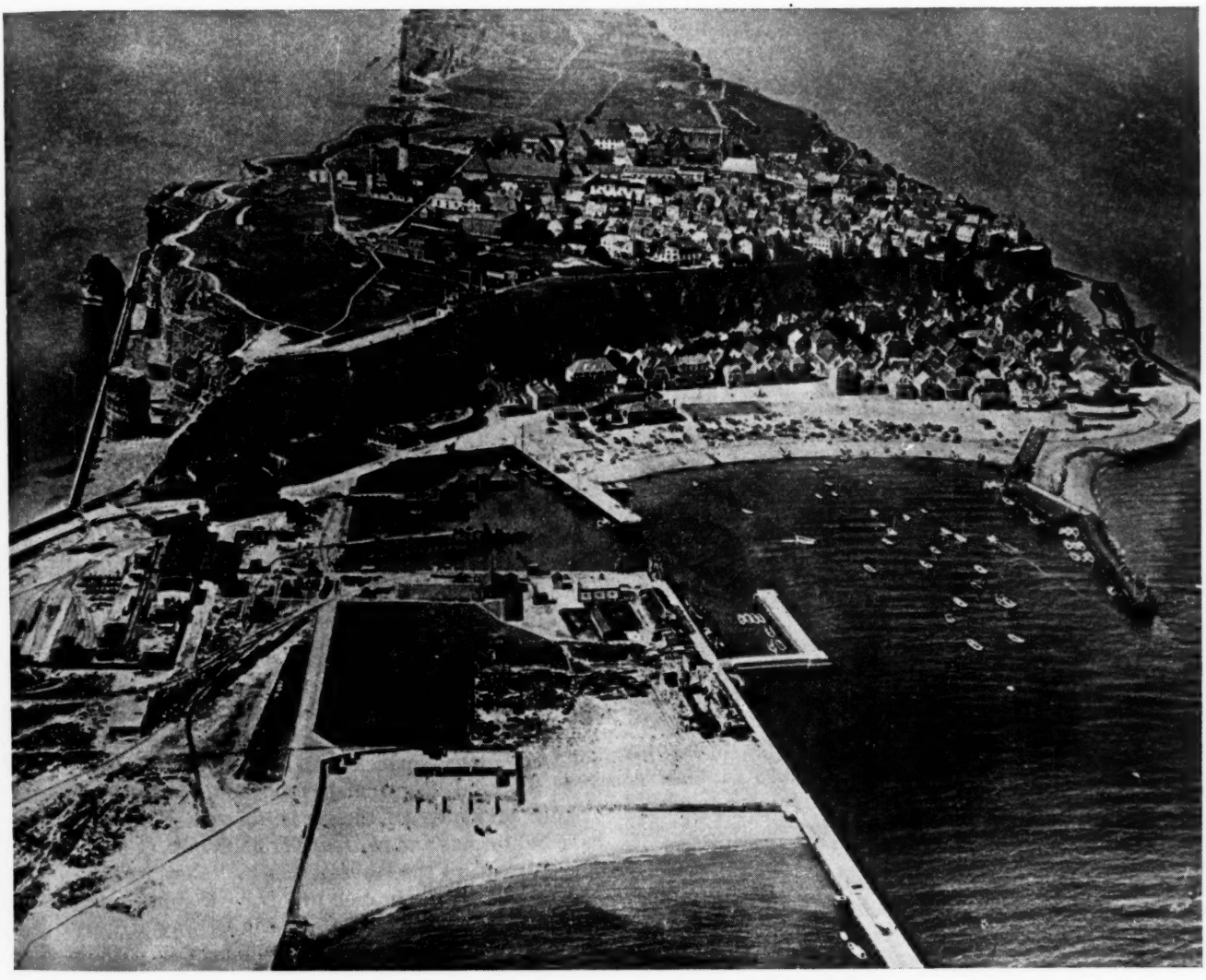
After months of hesitation on the part of Tokyo, the new "Chinese National Government" under Wang Ching-wei was finally inaugurated on 30 March. The northern provinces of Hopei, Shansi and Shantung have been detached from Nanking's control and given a semi-independent position under a special Political Affairs Commission. The Inner Mongolian puppet régime dominated by the strong Kwantung Army, also retains its independent status. So, instead of a single centralized government, there are three separate Japanese-sponsored régimes in the occupied territories of China aside from Manchukuo itself. The terms on which Wang Ching-wei has been induced to accept his new position have not been revealed, and to date the Japanese authorities have refrained from extending formal recognition.

The war attained its climax when the Japanese captured Hankow in October 1938. Since then, there have been no major military engagements nor is there promise of any in the future. The Japanese mechanized forces attained the limit of feasible advance when the invader reached the foothills of Western China. Entrenched in the wealth-producing interior provinces, with strong natural barriers between him and the invaded parts of China, it would seem that Chiang Kai-shek could hold out indefinitely. He cannot be starved out and he seems to be getting the comparatively small amount of munitions and supplies needed for the type of warfare that he is waging.

After almost three years, no one dares to predict the outcome of this "affair," although it appears evident that neither side has the ability or power to break it by military means. That an ill-organized Chinese State, in the throes of political and social revolution, has been able to challenge and resist the attacks of a great military and naval power, is one of the greatest human efforts ever witnessed in history. China has proved by her courage, resourcefulness and determination that she possesses the will and has earned the right to survive as a nation.



General Map of the Scandinavian Peninsula



Acme.

R.A.F. AIR PHOTO OF HELGOLAND, THE STRONGLY FORTIFIED GERMAN BASE, SPEARHEAD FOR NAZI SUBMARINE AND AIR ATTACKS ON BRITAIN

The European War

I—THE SCANDINAVIAN CAMPAIGN

BY LIEUTENANT COLONEL E. M. BENITEZ, *Coast Artillery Corps*

On Monday, 8 April 1940, the British Admiralty announced that the Allied naval forces had laid three mine fields along the Norwegian coast to intercept German ore shipments. Early Tuesday morning, German troops in a lightning stroke had occupied Denmark* with little difficulty and had made sudden landings on the far-flung Norwegian coast including Oslo and Kristiansand in the south and Stavanger, Bergen, Trondheim and Narvik in the west and north. This action was so devastating in its suddenness, so skillful and complete in its employment of Trojan horse tactics, that it went largely uncontested. By evening the entire daring operation had been completed and the invaders were in possession of Norway's principal ports, air bases and harbor defenses.

*Denmark is a little smaller than Massachusetts and New Hampshire combined.

Historical Background

Norway had been singularly free from the menace of invasion for many years. After wars with her northern neighbors in the Middle Ages, her only external troubles were dynastic squabbles which involved union with and separation from Sweden and Denmark.

Haakon's reign, first of an independent King of Norway in 500 years, began in 1905, when he was crowned at Trondheim with his Queen, youngest daughter of Edward VII of England. Until then, Norway shared its crown with other Scandinavian countries: its King remained away from Norwegian soil and was neither Norwegian nor one of Norway's choice.

From 1450 until 1814, Norway was ruled jointly with Denmark by a Danish King. From 1814 until 1905, Norway was united with Sweden under the house of Bernadotte, only dynasty established by Napoleon to survive the First Empire. In 1905 the Norwegians declared their independence of Sweden and sought a King without success from the house of Bernadotte. The crown then was offered to Crown Prince Carl of Denmark who accepted and, as Haakon VII, ascended the throne. He is still reigning as a constitutional monarch.

Norway's Armed Forces

The Norwegian Army consisted of six divisions, a supply corps, a service corps, a recruiting department, the military academies and various commissions. To the divisions were assigned the various technical and service units necessary to form an operative field division. The infantry consisted of sixteen regiments and two independent battalions. Three dragoon regiments constituted the cavalry, while the artillery comprised three regiments of field artillery, three battalions of mountain artillery and one antiaircraft regiment. The engineers consisted of one regiment besides two battalions. The army air force, admittedly small, consisted of one regiment and a battalion.

Military service was compulsory for all men; any one who might refuse to serve on religious grounds or because of serious conscientious objections, had to undertake civil duties.

The navy and the coast defense were under the orders of the admiral-in-command. The defense had two branches, the navy itself and the coast artillery.

The long, rocky coast of Norway was divided into three defense districts, commanded by either rear-admirals or commodores who were responsible for all the naval and coast defense units within their districts.

At the start of the present invasion the Norwegian Navy possessed four ironclads or battleships, six destroyers, seventeen torpedo-boats, nine submarines, seven coast guard ships, eleven minelayers and six minesweepers, besides a number of specialty ships.

Besides the regular army and navy units, Norway had two organizations which have been closely connected with the history of its defense for the past fifty years: the Defense Association of Norway, founded in 1886, and the Voluntary Rifle Shooting Association, which was organized in 1893 to promote the practice of shooting among the Norwegian people, and which is state subsidized.

The German invasion was so swift and surprising that the Norwegian Army did not have time to mobilize.

Military Geography

A land of fjords, with a 12,000-mile coastline and surrounded on three sides by the sea, Norway is the most thinly populated country in Europe, with an area of 124,500 square miles and a population of 2,900,000. It is separated from Sweden by a chain of high mountains which are almost uninhabited and are largely covered with ice.

With the exception of the southeastern sector, Norway is a rugged mountainous country lacking in valleys which offer natural routes of communication. Its long western coastline is fringed with fjords that cut deeply into the mountains, but these fjords stop abruptly against perpendicular cliffs instead of extending inland to form valleys, up which roads and railroads might be constructed. As a result, east-west communication in Norway was, until 1909, confined to the coastal water route. In that year a railroad was completed between Oslo and Bergen through mountainous terrain that necessitated the construction of 178 tunnels, numerous horseshoe curves and innumerable bridges. Between Oslo and Stavanger, railroad communication has not been feasible due to the impossibility of overcoming the terrain difficulties between Kristiansand and Flekkefjord. There are today a number of good roads joining Oslo and the west coast towns, but keeping them open for military use in war should present a highly complicated problem to an invading force. The numerous mountain passes are natural fortresses, which can easily be blocked and just as easily defended.

North-south communication in Norway is favored by the presence of two important valleys—the Gubrandsdalen and Oesterdalen—which open into the Oslo area from points near Romsdal Fjord and Trondheim Fjord respectively. Taking advantage of these natural routes, the Norwegians have built roads and railroads from Oslo to Central Norway. The railroad in the Gubrandsdalen Valley runs to Dombas and Storen, with a branch line from Dombas to Andalsnes; the Oesterdalen line runs to Storen by way of Roros. Good roads, paralleling the railroads, connect Oslo with the Trondheim area.

Three railroads out of Trondheim link that important naval and air base with Storen, with Oestersund in Sweden, and with Namsos (100 miles north of Trondheim). The narrow strip of country north of Namsos is provided with poor road facilities due to the fact that the fjords cut right through Norway to the Kjolin Mountains that form the boundary between Norway and Sweden.

Running into Sweden, in addition to the roads from Trondheim, are two railroads out of Oslo and the important iron ore road from Narvik through the Swedish iron ore district to Lulea on the Gulf of Bothnia.

As a result of the inaccessibility of points north of Trondheim, six-sevenths of the Norwegian population are concentrated in that half of the total area that lies south of Trondheim, and practically all of the industrial centers are located in that area. Control of this vital southern area gives virtual control of all of Norway, although it must not be forgotten that, from a military point of view, Narvik is an important port for ore shipments particularly when the Gulf of Bothnia becomes ice-bound.

The Commanders

The German combined army, navy and air forces operating in Norway, were commanded by General of Infantry Nicholas von Falkenhorst, an officer of established reputation in the German Army. He is 55 years old and entered the army in 1903. During the World War he served both as a company commander in infantry regiments, and as G-3 of a number of infantry divisions. In 1918, he filled the position of operations officer to von der Goltz' Finland expedition. In this position he obtained valuable experience in the conduct of landing operations and of a combined army-navy expedition.

Following the World War he served in the German volunteer units which contested in 1920 with similar Polish units for the control of Upper Silesia.

In the Polish Campaign, von Falkenhorst commanded the XXI Corps of the Third (East Prussia) Army in its successful attacks on Graudenz and Lomza in the final pursuit phase of the operation. He was promoted to General of Infantry at the end of the Polish Campaign.

The Allied Forces were commanded by Belgian born Major General Carton de Wiart, who was recalled to active service after seventeen years of residence in Poland. General de Wiart was born in Brussels on 5 May 1880, and is 60 years of age. He graduated from Balliol College, Oxford and was commissioned in the 4th Dragoon Guards on 14 September 1901. He served in South Africa during the Boer War in 1901 where he was wounded twice. Again he was seriously wounded during his service in Somaliland, East Africa, 1914-15. He received the Victoria Cross for his service in the World War, 1915-1918. He lost one hand and one eye and was wounded eight times during that war.

Having reached the rank of Colonel he was retired with honorary rank of Major General on 10 December, 1923.

Operations

For obvious reasons, the occupation of Denmark had to coincide with the occupation of Norway. The use of Denmark's air bases and the control of her coastal waters facilitated the occupation of Norway. And if Denmark had been seized even twenty-four hours before the attempt was made to land in Norway, both Britain and Norway would have been able to make some preparations to resist the invasion.

The carefully planned German coup was such a complete surprise to the Danes that they had no chance to offer any opposition. Four different forces embarked from German ports the night of 8-9 April for as many ports in Denmark. The first of these, accompanied by an armored train, was ferried to Gjedser, from which point it proceeded north and occupied Copenhagen at dawn 9 April. Two forces were landed from naval vessels at Nyborg and Korsoer, terminals of the ferry that connects Seeland, the island on which Copenhagen is located, and the island of Fyn. The fourth expeditionary force was landed at Middlefahrt in order to gain control of the narrows of the Little Belt between Fyn and Jutland. Mechanized units crossed the Schleswig border early in the morning 9 April, and soon overran the entire peninsula of Jutland. The next day the Nazis seized the island of Bornholm in the Baltic and by 11 April they were in complete control of Denmark.

Geography and distance, of no importance in the occupation of Denmark, were elements that seriously complicated the German plan for occupying Norway. This plan called for a main effort against Oslo through the Kattegat—well away from the roving British fleet—and a number of lesser efforts against the south and west coast Norwegian ports. The main force at Oslo was to seize the capital and the surrounding area as a base from which operations could be carried on in the south and to the north, while the remaining forces were to seize the ports of Arendal, Kristiansand, Stavanger, Bergen, Trondheim and Narvik and prevent any allied attempts to land forces on the west coast.

Increased activity of German scouting planes over Norway early in April and the sighting of German naval vessels off Denmark during the same period might have been construed as indications of an impending move by Germany. It was not, however, until 8 April when British submarines, operating in the Skaggerak, sank a troop ship near Lillesand, that suspicions were confirmed that the invasion was imminent.

German Landings in Norway, 9 April 1940
At right below: special map of Oslofjord

THE HARBOR OF OSLO, NORWAY'S CAPITAL, NOW IN GERMAN HANDS *Photo by Lionel Green.*

THE INVASION

CAPTURE OF OSLO

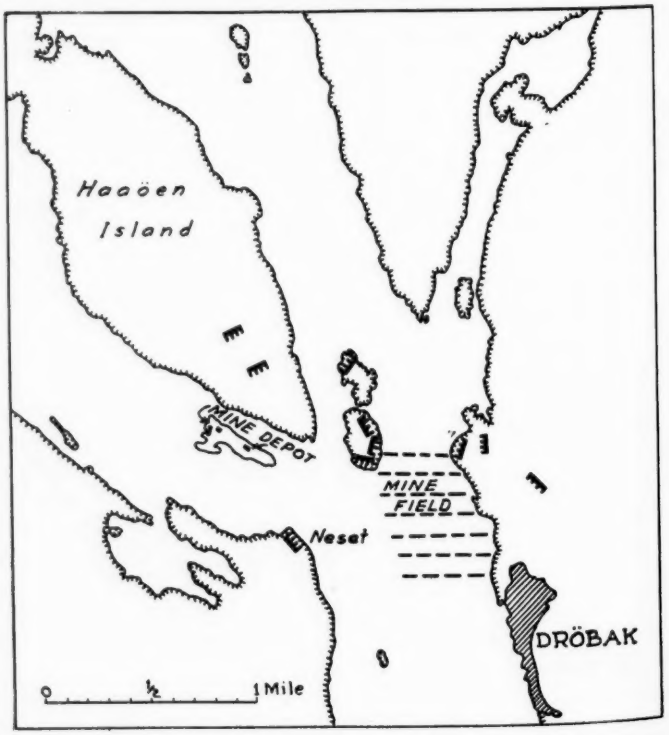
As these pages go to press it appears evident that Trojan tactics played a decisive role in this campaign.

At about one-thirty in the morning, 9 April, three Norwegian vessels lying off *Horten's* naval base in *Oslofjord* were informed that German warships were coming up the fjord. The commander of the Norwegian squadron was ordered not to resist and to put all his men ashore, without arms of any kind. The order was promptly obeyed without questioning. However, the minelayer, "Olav Trygvason"—built in 1933, displacement 1,596 tons, armament 4-4.7-inch guns, 1-3-inch AA, 2-3-pdrs—had put in unexpectedly for repairs and did not receive the order.

At the same hour somebody in the naval control base at *Oscarsborg* in the fjord's narrows, disconnected all the Norwegian electrical mines, which had rendered the sea entrance to Oslo virtually impregnable.

All seemed to be progressing like German clock-work. However, two costly slip-ups in the plot occurred. At 4:30 AM the cruiser "Emden" and two submarines steamed confidently up to Horten. The three Norwegian vessels remained silent, but the little "Olav Trygvason" opened fire and sank the "Emden" and one submarine before receiving orders to run up a white flag.

Another German ship landed about 100 marines, who after a short fight, overpowered the Norwegian sailors in the Horten base, most of whom had been unarmed by their officers' orders. Horten, Norway's most important naval base, was thus secure in German hands.



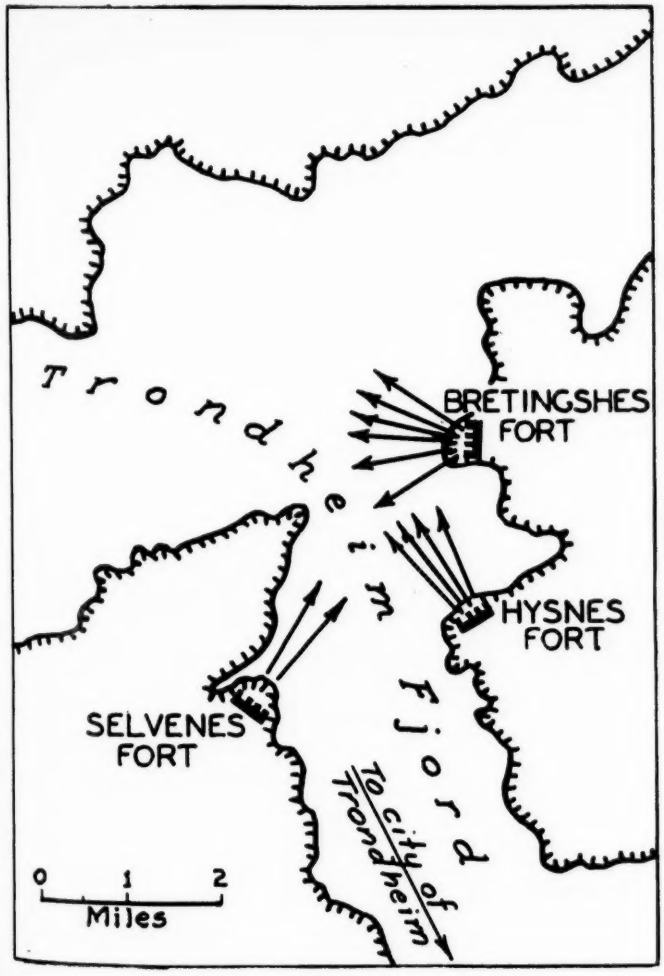
HARBOR DEFENSES OF DROBAK PROTECTING THE NARROW ENTRANCE OF OSLOFJORD

About 4 o'clock in the morning, the cruiser "Blucher" slipped serenely into the Narrows, convinced that treachery had spiked *Oscarsborg's* powerful guns. The "Blucher" advanced directly toward those guns. As she came to within 800 yards, an unknown artillery officer gave the necessary command and the forts opened fire, sending the German cruiser to the bottom of the Narrows within five minutes. However, German bombers soon silenced those batteries.

In the meantime troops had been landed on either shore of the fjord, 500 men at Moss and 1,000 men at Vallö. From these points they proceeded to Oslo.

The three airports at Oslo were blanketed at dawn by German bombers which destroyed Norwegian planes and antiaircraft guns and paved the way for transport planes which soon began landing loads of twenty to forty men each. During the afternoon of 9 April, one of the planes delivered to his new base of operations, General von Falkenhorst, commander of all forces operating in Norway, who arrived just in time to lead a parade of 1,500 Nazis through the Norwegian capital of 253,000 inhabitants.

Much the same story was everywhere. At Trondheim, important naval and air base, a reinforced Nazi regiment took over the town and the forts guarding the entrance to the harbor without firing a shot. The heavy German cruiser "Hipper," after landing troops at Trondheim 9 April, joined the "Scharnhorst" the next day and helped her to escape from the British cruiser "Renown" by laying a smoke screen between the two vessels.



HARBOR DEFENSES OF TRONDHEIM

At Bergen, Norwegian naval base, the German landing was likewise unopposed. However, after seizing the town and 400 American trucks that were manifested to Finland, the Germans found their advance out of the town barred by Norwegian resistance that encircled the town for several weeks, and held out until Nazi troops from Oslo arrived.

Not a Norwegian soldier was present to resist the landing of the 2,500 Nazi soldiers at Narvik, well above the Arctic Circle. Here seven German destroyers assisted the landing of the troops by sinking two Norwegian destroyers and two armed British merchant vessels that were lying in the harbor. All seven destroyers were eventually sunk by British naval vessels in operations in the harbor of Narvik, 9 and 11 April. Two British destroyers were lost and others were slightly damaged in these operations.

No resistance was encountered by the force that seized Stavanger, important air base which the British bombed regularly after the Nazi occupation 9 April.

On the Skaggerak coast, landings were made at Kristiansand and at Arendal. No opposition appeared at the latter point, but the fort at Kristiansand succeeded in sinking a Nazi warship before the German bombers arrived to silence its guns. By the afternoon of 9 April the Germans were in complete control of everyone of the seven ports where they had landed in the morning.

During the following week, the Germans strengthened the footholds gained and broadened the base of operations at Oslo. Transport planes operated regularly between Aalborg, air base in northern Jutland, and the air fields of Norway. The night of 10-11 April, a second large force was transported through the Skaggerak into Oslo Fjord. British naval vessels sank several ships in the convoy but there was no way of interrupting the steady flow of air transports. Freighters, loaded wtih tanks, armored cars, artillery and ammunition discharged their cargoes at Oslo and returned for more.

On 12 April, with the infantry of three divisions available, the Germans started to spread out from Oslo. A force moving south along the eastern shore of the fjord encountered slight resistance from unorganized groups of Norwegians, but was unopposed by a strong force of 3,000 who fled from Halden, 1st Division Headquarters, into Sweden when the Nazis approached. A second force, moving east, was halted at Skarnes, but reinforcements enabled it to push the poorly equipped Norwegian defenders to positions north of Kongsvinger which the Germans occupied 17 April. They moved on to the Swedish border, and then cleared out all resistance in the southeastern tip of Norway. The occupation of this sector placed the Germans in positions behind the right flank of the Swedish line of coast defense.

Other forces operating from Oslo moved to the northwest, west and southwest seizing Honefoss, Kongsberg and Larvik respectively.

Most of the Norwegian troops in the Oslo area were reorganized northeast of the capital at Hamar and Elverum where King Haakon had fled. It was south of these two towns that their first attempt was made to organize a line of resistance. This line held until 20 April when German

motorized units accompanied by tanks and aided by bombers drove back the defenders and captured the two towns.

Having seized the key points along the Norwegian coast, and having established a base of operations at Oslo, the Germans lost no time in attempting to establish communications between the base and the isolated forces at the various ports. There was no particular difficulty in joining with the forces at Arendal and Kristiansand. The forces at Stavanger and at Bergen were not in any immediate danger, and at Stavanger in particular reinforcements and light matériel were brought in by air transport. The Germans at Trondheim and at Narvik, on the other hand, were a long way from assistance and prompt action on the part of the Allies might cut them off and result in the loss of northern Norway. Narvik might have to be given up, but it was essential that the Trondheim area be retained. Control of this area means control of the valleys that run south to the Oslo plain. It means control of important railroads that connect with Sweden and Oslo. And finally it would mean control of the only port in the north that has adequate facilities for an expeditionary force of appreciable size.

If the Trondheim area was important to the Germans, it was even more important to the Allies. Their efforts had to be directed at driving the Germans out of Norway from within. And, with the exception of Narvik, an effort to dislodge the Nazi forces at any other point would have been ineffectual due to the German air superiority. Narvik is important as an ore port, but its location prohibits its use as a base of operations.

Thus, while the British continued operations against the Germans in Narvik, their plan called for a main effort in the Trondheim area with the purposes of driving out the hostile force and of establishing a base from which operations could be carried out to drive the Germans from southern Norway. And at the same time the Germans directed their efforts to prevent the Allies from carrying out their plan by pushing reinforcements up the valleys from Oslo.

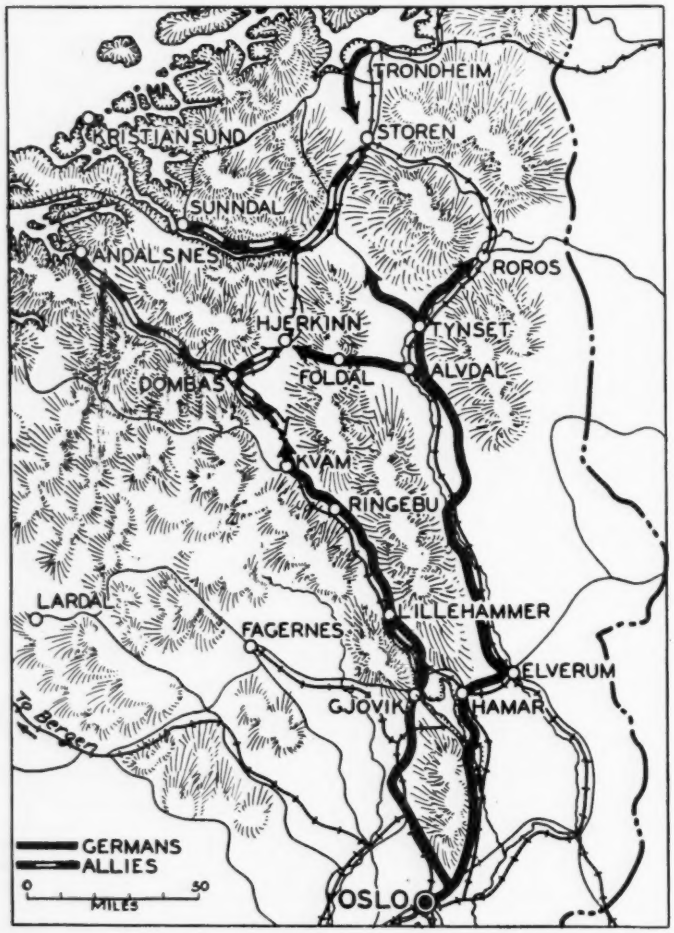
The race for Trondheim began 15 April when the first elements of the allied expeditionary force landed at Namsos, almost 100 miles north of Trondheim, and at Molde and Andalsnes, an equal distance to the south. Leading elements of the force from Namsos moved toward Levanger, about 15 miles north of Trondheim, but were forced to fall back to positions north of Steinkjer when a German force assisted by bombers and by naval vessels in Trondheim Fjord threatened to annihilate the entire advance detachment a few miles below Steinkjer. The Allied troops landing south of Trondheim moved to Dombas and Storen to seize those railroad centers and road junctions while small elements from these forces moved down the valleys to join the Norwegians in an effort to halt the German advance to the north.

But the British efforts had started too late. The ports they were using, inadequate in the beginning, were rendered even more so by German bombers that destroyed the town of Namsos and its piers, ruined harbor facilities at Molde and Andalsnes, and cut lines of communication between these ports and the advance elements. Any attempts on the part of the British to improvise air fields were nullified by Nazi bombings. Unable to provide themselves with sufficient antiaircraft weapons and pursuit ships, the British had to submit to the continual bombings of the unmolested German air force, and the troops that were landed were obliged to operate without the assistance of the necessary artillery and antitank weapons.

Meanwhile the Germans were starting to push their forces from Oslo up the valleys to the Trondheim area. By 20 April they had sufficient tanks and armored cars available for attacks that scattered the Norwegian defenders north of their positions at Hamar and Elverum. From that time on, the Nazi mechanized units, preceded, accompanied and followed by airplanes that kept the defenders from organizing defensive positions, made such rapid advances northward that their own motorized troops were unable to keep up with them to hold the ground gained. The remarkable progress of these mechanized forces along the main highways became miraculous when they unexpectedly left the main roads and cut across slushy mountain trails to get in between the Allied forces at Dombas and Storen.

Without artillery and antitank guns, the Norwegians were helpless, and British reinforcements were not strong enough to be of material assistance. The strength of the German forces in these operations was no greater than that of the Allied forces, but the Germans had had the time and facilities to bring in powerful matériel.

Unable to stop the flow of German personnel and matériel into Norway, and unable to land their own troops and equipment in effective quantities, the British were forced to admit defeat in the Trondheim area. The withdrawal of



THE RACE FOR TRONDHEIM

their troops was started 30 April from Dombas and Storen. Evacuation of all British troops in the Trondheim area was completed 2 May, and the German occupation of southern Norway had been accomplished. During the pursuit of the British forces, a Norwegian rearguard of 300 men was captured near Dombas. The railroad Dombas-Ulsberg fell undamaged into German hands.

The Allied withdrawal on 2 May meant the termination of the Blitzkrieg phase of this campaign.

Comments

With the occupation of Denmark and Norway, Germany has gained many advantages, among others:

(1) It has obtained much needed food supplies and equally valuable raw materials, besides choking off the supplies which Britain was receiving from Denmark and Norway.

(2) Moral effect upon the small neutral nations. Small countries will probably be less inclined toward the side of the Allies.

(3) Economic if not also political domination of Sweden.

(4) Norway provides submarine bases close to British waters. Germany is thus in position to intensify her air raids and submarine attacks on British naval and merchant ships and thus weaken the blockade of the Reich while strengthening the counterblockade against Great Britain. The occupation of Norway may be a forerunner of the long delayed offensive against Great Britain.

The Allied expeditionary force necessarily had to be hastily organized to meet a carefully prepared and planned German attack. The Allied troops had to be transported about 400 miles from the nearest English port and had to be supplied with all the paraphernalia of modern warfare under the constant challenge of a powerful and alert enemy air force.

That the German moves in Scandinavia were prepared well in advance is indicated by the smoothness and precision with which they were executed. Nevertheless, to assemble an expeditionary force, to transport it across dangerous waters and along an exposed coast line under the very eyes of the immensely superior British Fleet, to keep the British Intelligence Service and the British Admiralty in complete ignorance of the elaborate preparations up to the very moment when the blow should fall and then to strike with a few score ships and a few thousand men and seize so much and important territory within twelve hours, is one of the most startling and brilliant feats ever witnessed in history.

Lessons

Is the airplane definitely superior to the battleship and the cruiser? There has not yet been a clear-cut victory of planes over ships and, therefore, this vital question still remains unanswered. Nevertheless, it appears evident that capital ships must be made less vulnerable to aerial bombs and that just as battleships built after Jutland incorporated in their designs, lessons learned in that greatest of sea battles of the World War, so naval vessels of the future will reflect experience gained from the combats near the waters of Norway.

There are other lessons which come to the attention of the military student the most important of which are as follows:

(1) Importance of unity of command. The German forces under *centralized* command were perfectly synchronized. The land and air arms worked in perfect cooperation. Soviet Russia successfully copied this system in the final phases of the war on Finland.

The Germans keep each arm separate as a unit, but operate them together; the British, on the other hand, keep the units separate and operate them separately. The British military moves in Norway have shown that such separation is fatal.

(2) A modern army must be adequately prepared and equipped.

In order to prevent the Germans from seizing all strategic points, the first British troops were apparently thrown into Norway in great haste with inadequate equipment. Afterwards it proved very difficult to provide them with the tanks, antiaircraft guns, armored cars and artillery needed to withstand the attack of the well equipped German forces.

The British deficiencies undoubtedly were caused by inadequate landing facilities, loss of transport ships, absence of air fields and the speed of the operations. There was a glaring and tragic difference between the equipment of the German expeditionary force where each man was equipped with at least one automatic rifle, a heavy load of grenades and other equipment, and the paucity of British equipment.

(3) Air power had a predominant influence in this campaign, just as it did in Poland and Finland.

(4) Brutal efficiency of mechanized units, which, working in close cooperation with the air force, gave the tempo of battle a speed and power never dreamed of before.

(5) Command of the sea must be supplemented by command of the air in order to secure complete superiority over the adversary.

(6) Efficient espionage system is an invaluable adjunct.

The time schedules of the British troop landings at Namsos, Andalsnes and Narvik were known almost to the minute by the Nazis. The Germans had their planes overhead at the exact moment and where they were needed. Also, in the Allies' short stay at Namsos, every move made was known beforehand by the Germans. This situation probably was the result of having spies in the area, mostly Norwegian Nazis.

(7) Audacity, resourcefulness and decision are of paramount importance in modern war.

The German campaign was characterized throughout by boldness, dash and vigor.

(8) Peace is something which cannot be achieved by mere wishing.

Norway had made a cult of peace. She stayed out of the World War, although she lost, chiefly through German submarine warfare, about 1,200,000 tons of her merchant fleet and nearly 2,000 seamen. Utterly unprepared, Norway's policy for years had been to keep out of war at any price. She had for many decades enjoyed peace and felt herself safe behind the barrier of an impeccable neutrality. It was her very unpreparedness which encouraged Hitler to embark on his latest aggression and enabled him to employ

"fifth column" tactics with such success. Had the Norwegians been better prepared they could have made their country an all but impregnable fortress, vulnerable only to large scale and expensive operations. Norway's dream of peace proved a dangerous illusion. Once again the truth of George Washington's immortal words becomes evident:

"To be prepared for war is one of the most effectual means of preserving peace."

FINNISH SKI PATROL EQUIPPED FOR ANY EVENTUALITY AS IT ADVANCES ON THE RUSSIAN FRONTIER *Wide World Photo.*

II—THE SOVIET-FINNISH WAR

BY CAPTAIN M. R. KAMMERER, *Infantry*

Bogged down in mid-January by heavy snows as well as by lack of supplies and mismanagement, the Russian "steam-roller" suspended for a fortnight its attempts to flatten out Finland. During this period the weather was given a chance to abate, the Finns were given a much needed period of rest, and a thorough inspection and overhauling was given the steam-roller which, according to the original plans, should have completed its job by the first of the year.

That something was radically wrong and required prompt attention was evidently apparent to the Russian high command. The task had to be finished before the arrival of the spring thaws which would have mired the Soviet machine in the Finnish swamps. The longer the job lasted the more certain did it seem that Finland would receive the help necessary to interfere with the machine's work and perhaps undo what had already been accomplished. Finally

there was the constantly increasing possibility of a new job for the roller in the Balkans and the Near East; and it was only natural that the U.S.S.R. should be anxious to clear up her first problem before becoming involved with a second. What pressure, if any, was exerted by Germany on the Soviets to speed up the completion of its program in Finland is uncertain. Information on this question, as well as on that of actual German assistance to the Russian machine, has been based, not on facts, but on inferences.

At any rate, many of the weaknesses of the Soviet army, as indicated by the first two months of the war in Finland, were pretty well ironed out by the beginning of February when operations were resumed. In command of the operations were leaders who understood their mission and who seemed to know how best to accomplish that mission with the personnel and matériel available.

The penetration of the Mannerheim Line continued to be the object of the main Russian effort, for the Karelian Isthmus was the only zone along the Finnish frontier where any sizeable force could be put in line and where the roads and railroads were capable of supplying that force. On the northern fronts, where their efforts had been so unsuccessful during December and January, the Reds appeared satisfied with holding the ground they had gained on the Finnish side of the frontier. Though they did not reduce the number of troops in the northern theaters, the inactivity of those troops simplified materially the supply problem which had seemed unsolvable and had led to heavy losses in December and January.

The Soviet troops engaged in the final efforts against the Mannerheim Line were much better trained and equipped than those the Finns found opposing them during the first two months of the war. Accompanying and supporting these fresh troops was better and heavier artillery than had been used in the beginning of the campaign. Until 1 February, the number of artillery shells fired by the obviously weak and ineffective Soviet guns rarely exceeded 5,000 rounds per day. Between 1 February and the end of the war, the number of rounds expended per day was many times that number.

Of equal importance in bringing the war to a conclusion was the improved Russian staffwork during the last six weeks of the drive on the Mannerheim Line. No longer were the efforts of infantry, tanks, and artillery made independently. There was closer cooperation between the various combat branches, including well-timed assistance from the Russian air force. The latter showed marked improvement not only in its cooperation with the ground forces, but also in the effectiveness of its operations on independent missions in the rear areas. The results were inevitable.

Finland herself was well aware of her inability to stop the Soviets if they should settle down to a serious prosecution of the war. General Mannerheim, grateful that the first wave of the invader had been repulsed, did not lose sight of the fact that he was waging a "fight against 50 to 1." The calls for help became more and more frantic after 1 February, but they went unanswered because they were not forwarded through the proper channels. Reliable sources indicate that there were three divisions of allied troops ready to embark at Brest for Finland upon receipt of a request marked "Official." Had Finland received the help of these 50,000 troops early in February, the Russian drive probably could have been stopped. They would have permitted the relief of Finnish soldiers, very few of whom had any opportunity to leave the front lines for a few hours of rest and sleep.

Compared with the 100,000 men that had been requested by the Finns and could have been successfully used by them, it is doubtful that outside help amounted to more than 10,000 volunteers. Of these the largest contingent came from Sweden early in the war and was of considerable assistance in the Salla sector on the Arctic Circle.

A better response was forthcoming to the Finns' request for matériel. Rifles, machine guns, antitank and antiaircraft weapons, artillery including the necessary amounts of ammunition, and planes were furnished by England, France, Italy and Sweden. But these supplies, necessary as they were, could not have, in any amounts, substituted for the much more needed soldiers.

Five Soviet armies were operating against Finland. These varied considerably in size. The two armies on the Karelian Isthmus during the last six weeks of the war were reported to total 24 divisions and 4 or 5 tank brigades. Assuming an average of 15,000 men to a division, the total strength of the force operating against the Mannerheim Line approaches 400,000.

The army north of Lake Ladoga consisted of 13 divisions and the 34th Tank Brigade, or approximately 200,000 men. One of the divisions (the 18th) and the 34th Tank Brigade were destroyed by the Finns during the last month of the war.

An army of five divisions operated between Suomussalmi and Salla. Among these were the 163d and 44th, destroyed at Suomussalmi at the end of the first month of the war.

Operating from Murmansk was a fifth army consisting of three divisions considerably reduced in size.

Opposed to these Soviet forces were 10 Finnish divisions on the Karelian Isthmus, 2 divisions north of Lake Ladoga, and 5 more, including 3 Civic Guard divisions, on the rest of the fronts. By calling upon young and old, by opening the doors of her prisons, Finland succeeded in mobilizing almost 400,000 men.

Karelian Isthmus

The advance of the Russian forces through the Karelian Isthmus had been halted definitely by the Finns in mid-December at the advance posts of their Mannerheim fortifications. And despite numerous costly efforts, the Russians were unable to penetrate even the outposts of this fortified zone. The weather in mid-January put a halt to further offensive operations and the Russians took advantage of the occasion to consolidate the positions they had occupied, and make preparations for a new offensive. During the next fortnight fresh, well-equipped, well-trained Red troops were poured into the line to replace or reinforce the territorials and defense troops whose poorly organized, uncoordinated attacks had resulted in imposing losses and negligible advances. Among the reinforcements were the highly publicized "Blue Divisions" from the Moscow area.

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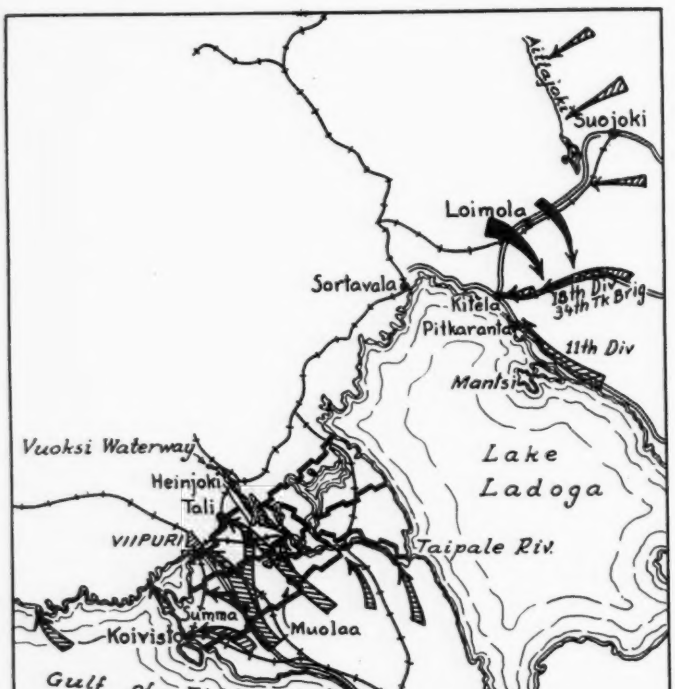
The nature of the Russian operations against the Mannerheim Line tends to confirm reports that Semen Budenny, 57-year-old Field Marshal, was in charge of the final drive there. Budenny gained fame during the revolution as leader of a troop of guerrillas. Unable to read or write, he was unqualified for the numerous government jobs offered him after the revolution and he returned to the army. He was made a Field Marshal in 1935, three years after graduating from Moscow Military Academy. Reckless with the lives of others as well as with his own, he undoubtedly saw no use for guerrilla warfare (at which he is a master) in conquering Finland (also very adept at guerrilla fighting), and chose the second best solution—driving masses through the Finnish fortifications.



MAP NO. 1—OPERATIONS IN SOUTHEASTERN FINLAND

It was apparent from the first day of the new Russian drive, 1 February, that the breakthrough was to be made at Summa, on the Leningrad—Viipuri road. (See Map No. 1) The terrain in this sector is much more suitable for offensive operations than any other sector along the line. Although the line was hit along its entire length from Koivisto to the mouth of the Taipale River, the attacks were strongest and most frequent in front of Summa. After eleven days of intensive artillery bombardment and repeated infantry and tank attacks, the Russians were able to report the capture of a few advance Finnish posts, chiefly pillboxes. The attacks and bombardments continued without abatement, and the Finns, overpowered by personnel and matériel, were forced to abandon their battered fortifications. By 13 February the Russians were in Summa, and three days later the Finns admitted its fall.

With the fall of Summa, pillar of the western half of the Mannerheim Line, the Russians were in an excellent position to bring about the fall of Koivisto where frontal efforts had made little progress. Cutting west to the Gulf of Finland, they captured Johannes and other railway towns on the Viipuri—Koivisto line. Cut off from supplies, the Finns were forced to abandon their fortress of Koivisto, western anchor of the Mannerheim Line, and the Russians took the fortress and occupied the peninsula as well as the islands offshore 21 February. Tons of bombs had been dropped, tons of shells had been fired by the Russians into the Koivisto area; it had withstood all these and had fought off numerous infantry and tank attacks across the ice of the Gulf of Finland. At the same time, it had created havoc with the Russian efforts to pierce the Mannerheim Line at Summa.

Having taken Koivisto, the Russians were free to concentrate on Viipuri, both from the southeast and, after crossing the ice, from the southwest.

The fall of Summa also assisted the Russian drive farther to the east between Lake Muolaa and the Vuoksi River. The pressure of the Red drive in this sector had been just as constant though less strong than the drive on Summa. Finally threatened on their right, as a result of the salient created at Summa, the Finns were forced to retire from their battered positions around Muolaa on 18 February.

From that time on, the problem of the Finns became one of delaying as much as possible the dogged advance of the Russians while new defensive positions could be organized northwest of Viipuri in the neck between the Gulf of Finland and Lake Saimaa. The tired Finns, lacking reserves, were forced to cede their positions before the onslaught of the Russians whose overwhelming numbers enabled them to use rested, if not fresh, troops in every attack. It was a question of sacrificing ground to save people or of sacrificing people to hold ground, and the decision to sacrifice ground was made.

By 1 March, the Russians, after a month of unrelenting attacks, were on the southern outskirts of Viipuri with their line extending eastward along the railroad through Heinjoki to the Vuoksi waterway. The complete encirclement of Viipuri became the next goal of the Russian forces, and when hostilities ceased at 11:00 AM, 13 March, that goal had practically been reached. Troops had succeeded in crossing the ice of Viipuri Bay to reach the mainland west of the city, though not in any great numbers. The drive east of the city had advanced as far as Tali, on the railroad about five miles to the northeast. Despite furious attacks which continued until the last minute, the Finns succeeded in holding on to their second largest city, although its fall was inevitable had the war lasted another week.

While the Soviet attacks, by their relentlessness, succeeded in breaking the Mannerheim Line in the western half of the Karelian Isthmus, no manner of attack could weaken the defense in the eastern half. In the area of the Taipale River, at the Lake Ladoga end of the line, the Red efforts were just as frequent, and just as powerful as they were in the Summa sector. But the Finns held until the end, and kept the Isthmus, east of the Vuoksi waterway, clear of Soviet troops.

LAKE LADOGA

While the main effort was being directed at the Mannerheim Line on the Karelian Isthmus, the Russian forces,

estimated at from 5 to 8 divisions, continued to exert considerable pressure along the 70-mile front northeast of Lake Ladoga, particularly along the shore of the lake. It is extremely doubtful that the Soviets had any hopes of large gains in that sector. However, the danger of a successful turning movement from that direction against the Mannerheim Line made it necessary for the Finns to keep a fairly large force (probably two divisions) in that area and out of the Mannerheim defenses.

In mid-January, increased Russian activity was noted along the entire front northeast of the lake. Along the shore of the lake three divisions (the 11th, 18th, and 168th in reserve) and the 34th Tank Brigade were concentrated for an attack in the direction of Sortavala. The 11th Division, using the shore road through Salmi, reached Pitkaranta but further advance was stopped by the guns from Fort Mantsi located on an island off Salmi. Repeated Russian attempts to silence the guns of this fort failed. The 18th Division, which was to join the 11th at Kitela, reached that point by taking the road coming in from the east.

The Finns then resorted to their customary tactics of working small groups of men around the Russian force to harass their lines of communication. Cut off from their supplies along the route they had just taken, and completely blocked off by the guns of Fort Mantsi as well as by the 11th Division on the shore road, the 18th had to try to extricate itself from its position. Its annihilation was a slow process, but by 6 February it was completed.

When the 34th Moscow Tank Brigade attempted to come to the assistance of the 11th Division, it was caught and encircled in the same manner as the unit it was attempting to rescue. The process of destroying the 34th Brigade was somewhat slower, however, and was not completed until the last of February.

The 11th Division, meanwhile, remained in the vicinity of Pitkaranta until the end of the war. It had succeeded finally in capturing a few islands off the shore west of the town, but had made no gains in the direction of Sortavala, its goal. Colonel Borisov, commander of this division, was reported to have been killed while on a tour of the battlefield on 6 February.

Farther to the north, around Loimola and along the Aittajoki (river), there was bitter fighting, but all Soviet attacks were repulsed without gain.

Northern Fronts

Having not only blocked but completely routed two Russian divisions in the Suomussalmi area at the end of the year, the Finns were not bothered by further Red activity in that sector. However, an attempt was made by the Soviet 54th Division to penetrate Finland in the vicinity of Kuumo, about 55 miles south of Suomussalmi.

This division reached Rasti early in the campaign, but was unable to advance any further because of the guerrilla activities of the Finnish ski troops, who could not, however, drive the Reds back across the border. A stalemate ensued until the arrival of additional troops late in January which permitted the Finns to launch an attack against the division which was in position along the road southeast of Kuumo, and to threaten the division's supply system. The arrival of reinforcements and the use of airplanes for dropping supplies to the division enabled it to hold out in its position until the end of the war.

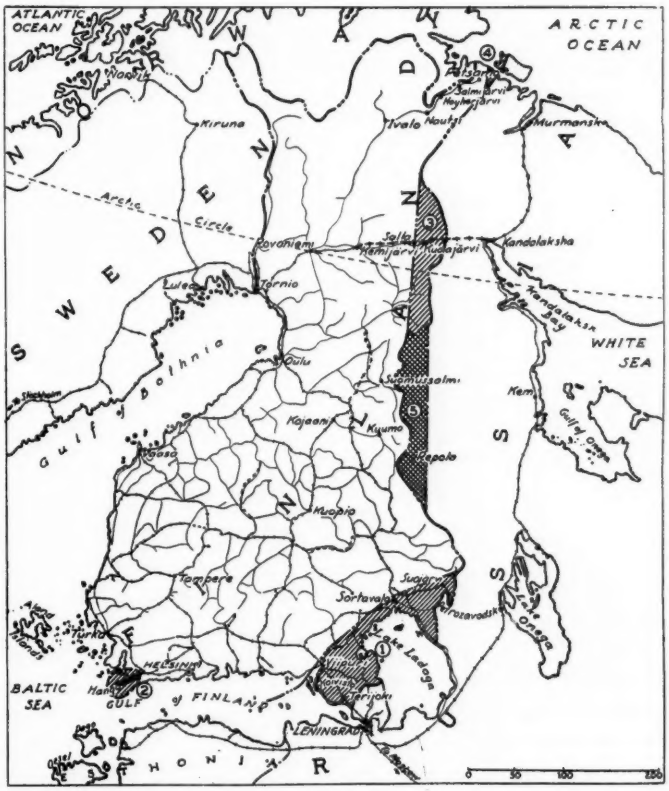
Along the Arctic Circle where, early in the war (19 December), the Russians had made their most serious threat at cutting the Finnish supply lines to Sweden, only minor activity was reported between 1 February and the end of the campaign. The Russian force, reported as three divisions, was held in positions around Salla, in the area which Finland has turned over to Russia by the terms of the peace treaty.

Operations in the far north were extremely limited during January and February due to the cold weather and the lack of routes of supply. The Russians were content to hold positions in the vicinity of Salmijarvi, to which they had withdrawn after pushing the Finns as far south at Nautsi (28 December 1939). The reports indicate that the Russians were satisfied with consolidating their Salmijarvi positions, improving their lines of communication and moving in additional troops preparatory to a spring offensive.

Finnish activity was, as usual, confined to patrolling. Three divisions made up the Red force in the area, although their total strength probably did not exceed 30,000.

A weak attempt was made by the Reds to capture Hoyhenjarvi, 6 February 1940, and again a few days later. Both attempts failed.

Toward the end of the month of February, the Red troops were ready for a new assault on the Finnish lines. The latter had expected such an attack and were prepared to fall back to better positions at Nautsi where positions had been prepared early in the war. Furthermore, such a withdrawal would shorten the Finnish line of communication and conserve the rapidly decreasing supply of manpower. The



Map No. 2—Finnish Concessions, Pact of 13 March, 1940

Russians, on the other hand, were anxious to push as far as possible from the Arctic coast where British naval activity was reported and to clear the narrow Finnish corridor which was the only available route of foreign assistance, unless Norway and Sweden were willing to open their doors to such assistance.

By 27 February, the Finns were in their positions along the Nautsi River, and despite continued Red attacks were able to hold those positions until the end of the war.

The Peace Treaty

Seeing no hope of carrying the war to a successful conclusion, nor of gaining any better terms of peace, the Finnish delegates at Moscow signed the peace treaty 13 March. The pact was ratified by the Finnish Parliament on the 15th, and President Kallio formally approved the ratification the following day.

As stated by President Kallio in a radio address on the 13th, the terms of the treaty were "unexpectedly severe compared with what the enemy has so far succeeded in achieving by war. They also exceed the demands presented by the Soviet Government last autumn in the name of the increased security of Leningrad."

Terms of the Pact (13 March, 1940)	Russian Proposals (October, 1939)
In the Southeast	
1. Finland cedes to the U.S.S.R. the entire Karelian Isthmus, Viipuri, the islands in Viipuri Bay, Lake Ladoga and its shores, and a triangle north of Lake Ladoga (9,650 square miles).	1. Finland cedes to the U.S.S.R. part of the Karelian Isthmus southeast of the Mannerheim Line, which she is to dismantle.
In the Southwest	
2. Finland leases to the U.S.S.R. at $120,000 per year for a period of 30 years, the Hango Peninsula and the waters and islands around the peninsula.	2. Finland leases to the U.S.S.R. the Hango Peninsula, and cedes certain islands in the Gulf of Finland.
In North Central Finland	
3. Finland cedes a large sector of territory around Kuolajarvi and agrees to extend, by joint efforts with the U.S.S.R., the railroad from Kemijarvi to Kandalaksha on the White Sea.	3.
In the Arctic Zone	
4. Finland cedes her territory on the Ribachi Peninsula in the Arctic, and grants free transit of Russian goods, citizens and non-military planes across the Petsamo corridor.	4. Finland cedes Ribachi Peninsula.
5.	5. Russia cedes to Finland a large sector of Russian Karelia, in return for above cessions.

By the cessions of territory in the southeast, Finland is seriously affected both from an economic and a military point of view. She has lost her second largest city, Viipuri, the center of a prosperous industrial area that was fairly thickly populated. She loses valuable timber land including the best larch trees in Europe. And the loss of the Karelian Isthmus has meant the sacrifice of a system of defenses which cannot be duplicated since there is no area left that can be as satisfactorily adapted to fortifications. Russia, in addition to her territorial gains, also achieved her long-sought security for Leningrad.

The territory ceded by Finland around Kuolajarvi, while a serious blow to Finland, is of immense importance to Russia. It pushes the frontier in that area back from the Murmansk Railway, to which the Finns were uncomfortably close. Russia has acquired in this area the hilly country that formed such an effective barrier to passage through the Finnish waistline. And, of course, the construction of a railroad through that area will be of great economic benefit to Russia, for it gives her access to Swedish resources over railroads completely controlled, if not owned, by the U.S.S.R.

The lease of the Peninsula of Hango to Russia is little less than an actual cession of Finnish territory and of Finnish liberties, although Helsinki is no closer to Hango than it is to the Russian air bases in Esthonia. The acquisition of this peninsula, which gives Russia full control of the Gulf of Finland, might be considered as a blow to Germany and possible schemes of German aggression.

While Finland is left helpless in the Petsamo area, which Russia has always dominated anyway, the Arctic clauses of the treaty will be felt even more by Norway who will have Russia for a back door neighbor.

Thus the Soviet-Finnish War, in addition to rendering the little Finnish republic impotent in the matter of defense and setting her back seriously from an industrial point of view, will have its effects also on the Scandinavian countries and on the entire Baltic region. What the effects may be on the situation in the rest of Europe are not predictable due to unpredictable European politics.

Comments and Conclusions

As might have been expected, the Russo-Finnish War brought out no new tactical principles, despite the introduction of new weapons and new methods of using the old ones. The importance of training and leadership was thoroughly demonstrated by the Finns, both in their early successes and in their later reverses. Nor can it be denied that the success of the Russians was, in a large measure, due to the fact that they finally used forces that were better trained and led than the original invading forces.

Infantry remains the decisive arm, although it cannot be expected to produce positive results without the efficient cooperation of artillery and aviation. Mere numbers are not conclusive unless they are thrown in to maintain the momentum of an attack. Once the momentum of the attack is lost, little headway can be made by the use of fresh reinforcements. The Soviet forces seemed to be unaware of this principle in their early efforts against the Mannerheim Line, while they took good advantage of it in their final drive.

The Soviet-Finnish War, as well as recent events elsewhere, should be indicative of the importance of guerrilla warfare. This type of warfare may assume many forms, but its purpose and basic principle remain the same. Whether it is patterned after the tactics of the Chinese against the Japanese, of the Germans in Poland and more recently in Norway, or of the Finns against the Soviets, its purpose is the harassment of the enemy behind his front lines. And its effectiveness depends upon the operations of

small groups of intelligent, intrepid individuals under carefully chosen leaders. They avoid rather than seek combat. The Swiss, realizing the enormous possibilities of such tactics, have recently incorporated instructions on guerrilla tactics in their training regulations.

On the rare occasions in which parachute troops succeeded in landing on Finnish soil without being winged, their activities were confined to minor depredations in the vicinity of the landing, and they were quickly captured or killed.

The use of armored sledges, carrying infantry troops and pushed or pulled by tanks, did not appear to present any particular problem to the Finns, who found the sledges vulnerable to grenades and the troops filing out of the sledges were vulnerable to machine-gun fire. Though these moving fortresses were not particularly successful in Karelia, it is not difficult to visualize their possibilities. The Mannerheim Line was simply not a satisfactory proving ground for mechanized warfare, and the Russians discovered that very little of Finland's frontier resembled the areas where they were accustomed to hold their tank maneuvers.

The "Molotov breadbasket," a large whirling bomb which opens and sprays numerous small incendiary bombs over the target, proved extremely effective judging by the photographs of areas reported to have been bombed by such missiles.

It is apparent, from press reports, that flame-throwing tanks were used by the Soviets. Many armies, the Italian army in particular, have experimented with flamethrowers, and it does not appear that the demonstration in Finland has contributed much to the information previously acquired on the subject.

There has been no confirmation of reports from both sides that gas was used by the enemy. Nevertheless both sides seem to have taken the necessary precautions against gas attacks.

The recent purchase by France of thousands of submachine guns from the United States seems to have been prompted, according to foreign experts, by the successes reported by the Finns in their use of this weapon. France, on the other hand, is no doubt highly pleased with the excellent results obtained by the Finns using French antitank guns. The Finns reported the capture or destruction of 1,486 Russian tanks, confirming conclusions made in the Spanish War that antitank measures are finding no difficulties in keeping up with the increases in speed and security of tanks.

Only a small percentage of the 587 Russian planes brought down by the Finns, according to their own reports, were destroyed in aerial combat. The effectiveness of modern antiaircraft artillery cannot, therefore, be denied. While these figures seem high, they coincide very closely with the corresponding proportions of planes destroyed and involved in the Spanish War.

Casualties, as reported by the two sides, vary greatly, each side tending to minimize its own losses and exaggerate those of the enemy. If official records of casualties ever appear, it is believed that they will be close to 50,000 killed and 150,000 wounded on the Soviet side, and 20,000 killed and 50,000 wounded on the Finnish side.

The Russian experiment in Finland, though successful, was a costly one—costly to Russia as well as to Finland. In compensation for her losses, Russia has gained territory, valuable from a military or economical viewpoint; she has strengthened her position in the Baltic and in northern Europe; and she has discovered that her army, though not as efficient as advance publicity would have led the world to believe, is nevertheless a factor that must be reckoned with.

Although forced to sign an unfavorable peace treaty, the people and army of Finland have demonstrated fortitude, gallantry and determination that are worthy of the sympathy and admiration of the entire world.

* * * * * * *

"Battle is the final objective of armies and man is the fundamental instrument in battle. Nothing can wisely be prescribed in an army—its personnel, organization, discipline, and tactics, things which are connected like fingers of a hand—without exact knowledge of the fundamental instrument, man, and his state of mind, his morale, at the instant of combat. * * * Man is flesh and blood, he is body and soul. And strong as the soul often is it cannot dominate the body to the point where there will not be a revolt of the flesh and mental perturbation in the face of destruction. * * * The best masters are those who know man best, the man of today and the man of history."—ARDANT DU PICQ—(From *The Relation of Psychology to Leadership,* Helmick.)

Foreign Military Digests

Digests of articles from foreign military periodicals; other items of interest from foreign publications are summarized in the Catalog of Selected Periodical Articles.

Mechanized Warfare

["La guerre mécanique," by Camille Rougeron, from *L'Illustration*, 24 February 1940.]

Condensed by CAPTAIN M. R. KAMMERER, *Infantry*

As far as tanks are concerned, the lessons learned from the more recent military campaigns are rather contradictory. Or perhaps there is nothing unusual about mechanized warfare.

The war in Spain was, for the tank, a dreadful blow. Assembled there were the latest productions of Italy and Germany on the side of the Nationalists and of the Soviets on the side of the Government. In no case did the infantry of either side receive any important help from these tanks when they were called on to cooperate. The heavy machine gun, the antitank gun, the simple grenade and even the most elementary means such as bottles of gasoline or improvised explosives easily got the better of them. It became necessary to give up the motor vehicle clothed in a suit of armor to protect the crew and, when making a penetration of the front as well as when exploiting that penetration, the infantryman, his rifle and his grenade were once again called upon to accomplish the essential task.

In the course of the German operations in Poland, the role of the tank and that of the airplane were both of such importance, often they gave so much assistance by their coordinated action, that it seems difficult to give credit for success to one any more than to the other. In aviation as well as in tanks the German superiority was overwhelming. Either of these arms by itself would have been sufficient to assure the success of the German troops; it would have been simply a question of delays and of a few additional losses. The Polish campaign is then the triumph of the tank, of the "Panzerdivisionen" which, from the very first day, smashed in the Polish front wherever they attacked, which isolated the high command from the troops, which broke up mobilizations and concentrations.

In Finland it appears that the tank once more encountered the hard times of the war in Spain and under conditions which compel even greater doubt concerning its ability to give the help expected of it. The numerical superiority of the Soviet armies was overpowering, whereas in Spain and in Poland the two adversaries fought it out with almost equal numbers. Mechanized warfare in Finland was conducted by an army and by an air force which attributed to the tank and to attack aviation a relative importance which few other countries have given them. It was directed against a nation just about as poorly supplied with one of these weapons as with the other. And yet the attacks of hundreds of tanks, accompanied by as many planes, and preceded by artillery fires, were hardly any more successful in piercing the front in the strongly defended sectors than the mechanized elements acting independently in weakly defended areas were in harassing the few Finnish divisions scattered over hundreds of miles.

Undoubtedly there can be found, in the three most recent examples of tank operations, varying conditions which explain the large variation in the results. Neither the commanders nor the soldiers of the Soviet armies can be compared with the commanders and soldiers of the German armies; there were large differences in the conduct of the Finnish defense and in that of the defense of Poland. The Soviet matériel is but a mediocre copy from foreign plans; the personnel is as incapable of maintaining this matériel as of handling it.

But the importance of these differences must not be exaggerated. On the whole the types of matériel used in the war in Spain, in the war in Poland and in the war in Finland were very much alike. But they ran into a defense —forests, obstacles, mines, antitank guns, field artillery— varying greatly in type as well as in density. That is the principal cause of their failure or of their success.

All armies seem to take notice of two fundamentally different missions in the use of tanks.

According to the French regulations, "Tanks may be given the mission of:

(1) Accompanying the infantry in combat and acting in close contact with it by attacking automatic weapons which may hold up its advance.

(2) Penetrating deeply into hostile dispositions as soon as they appear sufficiently weakened, and striking at weapons and installations in rear areas."

These two missions, the penetration of the front in cooperation with other arms and the exploitation of this penetration, have been provided for by all armies. But the importance attached to each of these missions by the various armies has been quite different, and the doctrine regarding the use of tanks has had some rather marked effects on the characteristics of the matériel.

The doctrine in the French army has always been based on a tank whose principal mission is to lead the fight, in close cooperation with other branches and particularly with the infantry, against an enemy having every means at his disposal. The matériel for carrying out this doctrine is a tank in which speed and radius of action are sacrificed for the advantages of protection.

On the other hand, the British army and, in its wake, the German army have placed a much higher value on the independent action of the tank. This conception justifies the creation of large mechanized units carrying on the battle on their own responsibility, either around a flank or through a breach in the front. The matériel for carrying out such a doctrine is a tank, a part of whose protection will have to be sacrificed for the advantages of increased radius of action and speed.

The rebuff to tanks in their attempts to break through fortified fronts in Spain and in Finland, the success of the "Panzerdivisionen" in breaking down the Polish system of communications or in outflanking the Polish armies might be indicative of the superiority of the second doctrine over the first. But before exploiting a success the front must be broken. The hundreds of Soviet tanks stopped by the Finns along the Mannerheim line would have desired only to be able to do their exploiting in open country towards Viipuri or Helsinki. If the German high command has not yet, in the west, launched its armored divisions along the roads through Nancy or Brussels, it is because there were found obstructing these routes a few obstacles that were not encountered in Poland.

If one-tenth of the time that has been devoted to studying tank doctrines had been devoted to the matériel, the tank, long ago, would have taken the place of many of the twenty million troops who, throughout Europe, have been freezing in their trenches or twiddling their thumbs in their barracks.

Like the fleets of warships at sea or of planes in the air, a mechanized force is judged by the number of its vehicles and by their individual power.

Numbers are, in warfare, an essential factor of superiority. "God has a habit of bringing victory to the big battalions," Napoleon used to say. The rule applies just as much to infantry protected by armor as to infantry attacking in close order with no other protection than a trench-coat with the hope that a third or even a quarter of their number will reach the objective.

The Soviet divisions succeeded in breaking the Mannerheim line by virtue only of numbers, not by virtue of the quality of their matériel. When the artillery has succeeded somehow or other in destroying the obstacles, when the carcasses of dozens of tanks trace out the route which they have dragged clear of mines, and when two hundred new tanks, under the cover of smoke, appear before the few guns that have not been destroyed, it is inevitable that a few of them should reach their destination. Not much different was the method in which the German mechanized divisions broke through—on those rare occasions in Poland when they were confronted by a few antitank guns which had escaped destruction but which could not fire enough rounds to stop a division.

It requires a good many years before any weapon is ever employed in those large quantities necessary to ensure its success. It was with reluctance that authorities acceded to the consumption of ammunition accompanying the general use of the machine gun. Equally loath were they to acknowledge the need for the large quantities of machine guns that would be required in order to have, following an artillery preparation of several hours or days, enough guns left to stop the ensuing attack. The thickness of the concrete forts in the Siegfried line is certainly no greater than that of numerous fortifications which did not withstand the heavy shells of 1914; but the increase in the number of these forts (one every 100 yards) in the sectors where access is easiest, the certainty that they will be reconstructed in the rear as quickly as they can be destroyed seriously complicates the problem of breaking through a front thus fortified.

As far as tanks are concerned, the misconception on the possibilities of industrial production has been just as great as it was in connection with machine guns or with concrete forts. The tank is an assemblage of sheet-iron, of armor and of machinery which will cost per pound very little more than a battleship. But, as soon as we talk of multiplying by hundreds the tanks of 200 tons, by thousands the tanks of 50 tons, everyone protests against the enormity of the expense. And yet no one thinks of complaining because the navy, which has 150,000 tons of vessels under construction, consumes in another form the sheet-iron, the armor and the machinery with which 500 tanks of 200 tons or 1,000 tanks of 50 tons could be made.

There are almost a half dozen countries which, for the last twenty years, have consumed annually more than 10,000,000 tons of iron for making rails, pots and pans and razor blades. Any one of those nations which had held out one-thousandth of that metal for the construction of tanks would, today, be the possessor of a mechanized force which would permit it to leave millions of men at home.

The tank was created, almost twenty-five years ago, for the purpose of protecting the infantryman from the bullets of the machine gun. From a glance at the tank armor with which most countries seemed satisfied until very recently, it didn't appear that anything more was to be expected of the tank.

It isn't because there were no thoughts of a tank which, on land, might be a counterpart of what the cruiser is on the sea. Almost twenty years ago, a Frenchman, well qualified in military matters, called for a tank carrying a 155-mm gun and 150-mm armor; some less ambitious German authors are today demanding a tank of 100 tons with 100-mm armor. It appears that neither of these projects would present the smallest technical difficulty. But there has been lacking a comprehension of the complete upheaval that would result from the realization of such projects, even in small quantities.

There are no other means of improving the essential characteristic of the tank—protection—than by increasing its weight. The same obstinacy in turning down great tonnage, a necessary condition in the case of thick protection, was observed for many years in the navy, where the term "mastodon" was used in referring to any vessel of 10,000 tons and where three dozen vessels of moderate displacement were considered preferable to one dozen, each of

which would be three times as large. That period has ended in the navy. Mechanized warfare will have made great progress when the value of heavy tanks becomes appreciated on land.

Nor is it sufficient to construct an immense tank, with no better armor than our present tanks, in order to derive from weight the desired benefits. The Soviet armies are fully aware of that fact today with their 70-ton tanks that could not resist the Finnish antitank guns. There is no use in furnishing weak protection to a dozen men manning a tank that is bristling with machine guns and cannon; it is necessary only to protect two men with an armor that will withstand any antitank gun that they may encounter.

Hundreds of tanks and armored cars were recently turned over to the army by the manufacturers. These are the first results of a policy which is seeking to replace the millions of men, powerless against lines of concrete forts, by tens of thousands of men who will man the tanks and airplanes that can break those lines and at the same time prevent the enemy from breaking ours.

Motor and Horse

["Motor und Pferd," by General Guderian, from *Illustrirte Zeitung*, 7 March 1940.]

Condensed by LIEUTENANT COLONEL E. M. BENITEZ, *Coast Artillery Corps*

During the twenty years between the World War and the present one, scarcely a month has passed without a discussion concerning the probable performance of horses and of motors in war. There is nothing surprising in this, because the answer to this question is the governing factor in the organization and combat methods of modern armies. We have awaited with great interest a test in actual warfare and now we have had it in Poland.

The Polish campaign was conducted on a terrain that was just what the partisan of the horse was looking for: almost endless roads of deep, soft sand; few highways; weak bridges and these mostly of wood; no repair shops, no gasoline stations; no storehouses with spare parts. Instead, there was a wide plain permitting the horse to travel on either side of the road, a land predominantly agricultural with sufficient forage, and, lastly, a condition that favored both horse and motor vehicle in the advance: good weather.

The campaign proved that the motorized vehicles were well able, in the dry fall weather prevailing in September, not only to cope with the difficulties offered by the Polish theater of operations, but to overcome them with the utmost ease. The German fast troops ("Schnelle Truppen") accelerated the movement of troops to such an extent that the army was able to complete the campaign in a few weeks. This fast speed put a great strain on the mounted units and the horse-drawn units, and at times they had great trouble in keeping up.

The Poles believed that they had made the best possible adaptation of their army to the nature of the terrain. The Polish army was predominantly a "horse" army and it possessed a strong and good cavalry force. Its motorized units and even its mechanized units were weak and, in addition, were not concentrated in large masses. This dispersion suggested in advance that they would not be able to accomplish much. The Poles committed a fundamental error; namely, that they underestimated the German motorized units and particularly the modern mechanized units and this underestimation was fatal. From the second day of the campaign, the Polish front was smashed, the enemy's communications interrupted, and his command paralyzed. History scarcely records a more complete defeat; and it could not be prevented by the sacrifice of the Polish cavalry.

In the Polish campaign the motor won a victory. After the close of the campaign the doubters declared: "If it had rained, or if there had been snow and slippery ice, then things would have turned out differently." Certainly. But it is doubtful that a horse campaign would have ended any better. Bad weather lowers the efficiency of the horse as well as that of the motor, and if it lasts a long time it ties the troops to paved highways. A hard winter can generally stop the movement of an army; it is just as difficult for the horse as it is for the motor. Both suffer from poor shelter. Supply and repair difficulties multiply rapidly, and, as a result of this, casualties also mount. Hence, since time immemorial armies have gone into so-called winter quarters in the worst season of the year. At the present time armies must use horses and motors simultaneously. Even if the German army preferred the motor, the manufacturing capacity of Germany and the fuel situation place strict limits on its extensive development. Hence, in modern war, such as at present, armies are made up largely of horse-drawn infantry divisions, in which certain special units—particularly for reconnaissance and antitank defense—and units used in the rear service are motorized. Cavalry or mounted combat troops have, as a rule, decreased greatly in number and have been replaced by fully motorized combat units and particularly by tank units, whose number depend essentially on the manufacturing capacity of a country. In addition, the so-called general reserve is motorized and, hence, can be moved quickly from one portion of the front to another and thus fulfill its general reserve mission.

For the future it may be said with certainty that the development of mechanical transport is by no means ended and that, consequently, the efficiency of motorized and armored units will continue to increase. But the efficiency of the horse is fixed by nature; in his case we can have no development. So then, while we cannot expect from mounted or horse-drawn units either greater mobility and speed or better protection against fire, the future will provide more powerful and more dependable motors, better running gear, stronger armor, and more effective visual communication means, and greater ability to withstand cold. Rivalry in this field is not to end soon, particularly in view of the fact that defense against this new means of attack is improving

and thereby forcing us to make greater and greater efforts to improve the mechanized field.

Out of the mechanized divisions, a new Seydlitz (a German cavalry commander of the time of Frederick the Great) will be born to the army. But this prospect need not frighten the partisans of the horse; on the contrary, in the armored divisions, the decisive cavalry arm of former times finds a continuation of its tradition. The tactics and operative use of the new arm are based on the traditions of the best cavalry doctrines. Cavalry and armored troops, antitank defense and tank guns, and motorized and mounted reconnaissance, form the "mobile" troops of the German Army.

Note: The author of this article, General Guderian, is known in the German Army as the German "Fuller." He is regarded as an extremist in the field of mechanized warfare.

During the Polish Campaign, he commanded the Panzer Corps attached to General von Kluge's Fourth Army (Pomeranian Army) and was decorated for the decisive part which his corps played in the closing of the Corridor and in the destruction of the Polish divisions in the vicinity of Tuchei Heath. In the latter stages of the Polish Campaign, his Corps was transferred to the southeast East Prussia. From this area, it launched a vary rapid and deep attack which resulted in the capture of the city of Brest-Litovsk on 15 September.

The Direction of Military Operations in Coalition Warfare

["La direction des opérations militaires dans une guerre de coalition." Translated from the French by Lieut. Colonel R. U. Nicholas, Army War College, Washington, D.C., from *Revue des Questions de Défense Nationale*, June 1939.]

Condensed by CAPTAIN M. R. KAMMERER, *Infantry*

Coalition warfare is not a new thing; but in its modern form it puts enormous resources to work in increasingly numerous theaters of operations and it gives to the conflict an unprecedented amplitude and intensity. The struggle is carried on in all forms and in all domains; it extends progressively over the entire earth, no less ardent in the economic field than on land and sea and in the air. It is indeed a matter of weakening or destroying the enemy's elements of material and moral resistance, in order to defeat him more surely by force of arms.

The conduct of a coalition war involves two essential problems:

(1) A problem of command, whether it be a question of the supreme command of the allied armies or of the strategic and political direction of the war.

(2) A problem of interallied organization, aimed at pooling the economic forces of the coalition in order to obtain a better effect therefrom.

Laying aside entirely the second problem, we propose to investigate only the problem of command. To that end we propose to study the operations of the coalition war of 1914, not so much for the purpose of retaining the solutions adopted as to fix a few principles that can guide the responsible leaders in analogous circumstances. It will be observed that this problem of command imposes itself in various ways, from the "military" to the "political," and that it will be impossible to say where the one ends and the other begins. It will be found that the interpenetration of strategy and politics constitutes the most serious difficulty of the problem for a coalition, although there are many others.

I—MILITARY DIRECTION—*On the Side of the Allies*

On the Western Front, the chief theater of operations, unity of command was achieved twice, under greatly differing circumstances:

(1) In 1916, by the moral authority of General Joffre with the unanimous consent of the Allies.

(2) In 1918, by General Foch, by virtue of a mandate received from the allied and associated governments.

In both of these cases, the strategic direction of the coalition benefited from the unity of command. The short-lived experiment of a high command entrusted to General Nivelle in 1917 offers only negative information, which is not, however, to be disregarded.

The history of unified command and strategic direction under Joffre embraces two periods, the first being that of his collaboration with Marshal French on the Western Front, and the second being that of his direction of the coalition strategy in 1916.

JOFFRE AND FRENCH COLLABORATION

Nothing had been anticipated before the war, nor at the commencement of operations, concerning unity of command on the Western Front where French, British and Belgian troops were to operate in close contact in the same battle.

Cooperation between the British and French armies, in particular, thus became a matter of first priority. Now this is the place to call to mind the formal instructions of Kitchener to French:

> "I desire that you clearly understand that your command is an entirely independent command, and that in no case and in no manner will you be placed under the orders of an allied general, whoever he may be."

On the other hand, the mission of French and his line of conduct may be summed up thus:

> Support the French Army and cooperate with it in action against the common enemy.
>
> Consider that the numerical strength of the expeditionary force is strictly limited.
>
> Use the greatest care in order to minimize losses and attrition.

One must have in mind these imperative and restrictive initial instructions in order to appreciate properly the value of Marshal French's loyal collaboration in 1914 and 1915. And that loyalty in collaboration was reciprocal. French

wrote in his report after the battle of Flanders: "I am deeply grateful to Generalissimo Joffre for having extended to us such cordial and effective cooperation."

The collaboration achieved on the Marne and in Flanders was to continue in 1915, with its horizon further broadened. The accord of the two staffs at that time was such as to have a favorable repercussion on the attitude of the British Government. Kitchener came to France to tell Marshal French, prior to the attacks of September, 1915, to do "everything possible to assist the French in their offensive." A profound modification, as one may see, of his restrictive instructions at the outset, for he added on this occasion: "even if it results in very great losses."

But, while this collaboration between the French and British commanders in chief had substituted effectively for unified command and had allowed the events of 1914 and 1915 in France to be faced, it showed itself inadequate, during 1915, for providing strategic direction outside of France, on the increasingly numerous war fronts of the coalition. A defective organization had visualized only the operations on the Northeast front, and it included no central direction agency for the theaters of operation as a whole.

The absence of strategic direction made itself cruelly felt. To it were attributed the check at the Dardanelles, the crushing of Serbia, and on 24 June 1915, General Joffre, aware of the steadily growing danger, wrote to the Minister of War:

> "An impression is spreading more and more, on the Allied side, that the war is not being directed * * *
>
> "It seems that the remedy for this state of affairs may be presented in the following form:
>
> "The French Government would propose to the Allied Powers that the higher conduct of the war be centralized in the French GHQ, where collective plans and directives for operations would be prepared."

And Marshal Robertson, Chief of the British Imperial Staff, sharing Joffre's ideas, wrote: "In the autumn of 1915, the armies of the Entente were engaged in five campaigns in Europe and in several others in Asia and Africa. Each of these campaigns was waged more or less independently of the others, and there was no good system of coordination at all." And later he wrote: "We need to have a plan, drawn up in agreement with the French and covering the entire globe."

It was just such a plan that General Joffre, commander in chief of all French armies, was to have approved by the Allied chiefs or their representatives assembled at French GHQ early in December 1915. And, taking advantage of the moral authority that the victory at the Marne had conferred upon him, he set himself to assume the direction of coalition strategy and to execute it with no other mandate than the silent and unanimous consent of the Allies. Thus did a second phase of the war begin at Chantilly, 8 December 1915.

Joffre, Strategic Director of the Coalition, 1916

Though without a title, Joffre, in 1916, exercised all the functions of a veritable leader of coalition warfare, and with such tireless tenacity and so high an ideal of common interest that the France of 1916 did not understand it. His influence was exerted:

(1) Upon the double battle of Verdun-Somme.

(2) Upon the operations of the Italian Army in relation to the Russian offensive.

(3) In the East.

(a) The firmness of spirit of General Joffre enabled the Allies to maintain the Anglo-French offensive on the Somme in spite of Verdun, and to execute the Allied plan of operations in spite of the enemy: "A general and coordinated attack on all fronts."

(b) The influence that he had on the Italian and Russian high commands was extremely useful in the avoidance of friction between Italy and Russia. He opposed the Italian demand for a premature Russian offensive though he hastened the preparations for it; in short, he held each of the Allies to the Chantilly plan.

(c) In the East, Joffre managed to lift little by little the objections of the British high command with regard to the operation at Salonica. He was forced to act with much patience and by successful steps. He had, at Chantilly, 8 December 1915, won the point that the defense of Salonika be undertaken with urgent priority. Later on, he arranged that the British army be maintained there and organized for the war in the Balkans. And lastly, upon the entry of Rumania into the war, he was able to persuade England to participate in the offensive of the eastern army.

The splendid results obtained by the Entente under Joffre in 1916 were somewhat offset by the crushing of Rumania toward the end of the year. But too much stress cannot be placed on the fact that the Central Powers, despite their victory in Rumania, found themselves in a precarious situation as they faced the year 1917, and it was the authority and energy used by Joffre in 1916 that were responsible for the inevitable defeat of the Central Powers.

On 15 November 1916, Joffre had newly gained unanimous agreement for the conduct of operations and the campaign of 1917. The English and French had a joint plan by which, according to Marshal Robertson, "it would have been possible to gain decisive successes before the end of 1917."

At this very moment General Joffre was replaced by General Nivelle and, with him, France lost the strategic direction of the coalition that he was conducting on the essential portion of the world checkerboard.

An attempt had been made, by a decree of 13 December 1916, to place General Joffre in the Government and to entrust to him "the role of technical adviser as concerns the conduct of operations." But that attempt was never carried through, for a decision had been made definitely to sidetrack Joffre, giving him a marshal's baton as compensation.

"After two years of effort," wrote General Debeney, "Joffre had ended with a community of action which lacked only the word to achieve unity of command. A magnificent piece of work that was shattered a few yards from its goal by the destructive decision of the politicians."

The Command Crisis of 1917

General Nivelle, successor to Joffre, abandoned the plan of 15 November 1916, and caused another plan to be approved by the British and French Governments on 15-16 January 1917. Three weeks later he had the armies of Marshal Haig placed under his orders for the forthcoming offensive, although neither Marshal Haig nor Marshal

Robertson, according to the latter's Memoirs, had any voice in the matter. It is not difficult to understand their astonishment therefore when Nivelle, not realizing that his confreres were ignorant of what had taken place, read off a plan which certainly took too little account of the mentality of the French Allies.

According to Marshal Robertson, "The way in which the matter had been handled removed all hope of seeing the new system applied."

Nivelle did not survive the check of the April offensive. Unified command remained a dead letter; or rather it evaded the Allies. Furthermore, politics had taken control of military operations, in France as in England, by reason of the disagreement of the two leaders. The coalition was no longer directed.

From that unfortunate experience we learned that nothing is accomplished without confidence and that personalities play a dominating part in every problem of interallied command.

Foch, General In Chief of the Allied Armies in 1918

General Pétain was named Chief of the French General Staff 29 April 1917, and he was succeeded after a brief interval by General Foch. These leaders were able to maintain the strategic direction of French operations, but there remained the question of the strategic direction of the coalition, a question of vital importance at a time when the Russian revolution and American intervention demanded more imperatively than ever an effective conduct of the war.

Foch made an unsuccessful attempt, 26 July 1917, to impress upon the Allied Governments the importance of unity of action on the Western Front. The Italian disaster at Caporetto in October 1917 supplanted the problem of direction of the war as a primary matter.

Faced with the disruption of their coalition, the British and French Chiefs of Staff had been sent to Italy and the heads of the British, Italian and French Governments had met at Rapallo 5 November 1917.

From that meeting sprang the creation of:

> A Superior War Council of the Governments, members of which were the prime minister and a minister from each of the Allied governments, sitting at Versailles and assisted by
>
> An interallied military agency, in which the United States was represented shortly afterward.

It was in the beginning of February, 1918, that the Superior War Council was faced by the question of conduct of the war, through General Foch's proposition of creating a directing agency consisting of the chiefs of the general staffs. But nothing was done except to establish a "Versailles Executive Committee," presided over by General Foch and charged with fixing the strength of a general reserve, arranging for and deciding on its employment.

After vain discussions the matter of the general reserve was laid before the Superior War Council of the Governments on 14-16 March, 1918, at London. It was on this occasion that General Foch broached the subject of a unified command in its entire scope. He formulated in writing the most express reservations and gave to the assembled Governments a last warning, the significance of which was to be stressed a few days later by the German offensive, which was crowned with initial success.

Marshal Haig, on his part, telephoned to London, to the Chief of the Imperial Staff, asking him to come at once to France in order that a supreme commander for the entire Western Front might be designated as soon as possible.

Finally, during the famous meeting at Doullens on 26 March 1918, an agreement was reached on the following text:

> "General Foch is charged by the British and French Governments with coordinating the action of the Allied armies on the Western Front. He will make arrangements to that end with the generals in chief, who are urged to furnish him all necessary information."

Foch himself realized that in order to win the struggle it was necessary to do more than "coordinate"; the time had come to "order." This was the authority he asked for a few days later, and it was given to him with the following reservation:

> "The Commanders in Chief of the British, French and American Armies exercise full tactical conduct of their armies. Each commander in chief will have the right to appeal to his government if, in his opinion, his army is endangered through any instructions received from General Foch."

Finally, on 2 May, Foch's authority for coordination was extended to the Italian Front and if, on the latter front, circumstances should entail the presence of Allied armies, he was to be their commander in chief.

It was by these various stages, under the pressure of tragic events and in the face of catastrophe's imminence, that a supreme command and strategic direction were really established on the Western Front on the side of the Allied and Associated Powers.

"It is extremely important and comforting to note," wrote General Debeney, "that the exercise of unified command was singularly facilitated through the spirit of abnegation and the high fellowship evinced by the Commanders in Chief of the Allied Armies; never had there been such a oneness of heart for the benefit of the common cause."

Therein lies the true coalition spirit; it was through that spirit that the Allies won.

II—Military Direction

On the Side of the Central Powers

The belief, generally prevalent among the Allies, that a strong and unified direction controlled the operations of their enemies was not in accord with the reality.

Like the Entente, the Central Empires had concluded no previous agreement covering strategic direction, or even unit of command. Ludendorff not only acknowledged the error; he criticized it, explaining it as follows:

> "It was a mistake to have omitted from our war plans a plan for joint operations by Germany and Austria. The German staff feared that it would not be kept secret at Vienna."

Austria, on the other hand, "did not wish under any circumstances to recognize officially the fact that Germany was the stronger power in the alliance, and hence the controlling power," according to General von Cramon, German liaison officer to the Austrian GHQ during the war.

Germany's assumption that a preponderance of force was sufficient to create the right to command was incompatible with the spirit that should animate a coalition, although it must be admitted that Germany recouped desperate situations whenever the Austro-Hungarian Monarchy appealed for help. It was well, from the standpoint of benefits gained through the merits of her troops and her leaders, that Germany could lay claim to the high direction of operations. And yet it took more than two years of war and the crushing of Austria-Hungary for her to obtain it. Even then the result did not endure.

Three periods can readily be distinguished in the military direction of coalition of the Central Powers:

A two-year period of moderate collaboration between the two chiefs of staff, Falkenhayn and Conrad von Hötzendorf, which led to local and defective solutions for regulating command in joint actions.

A period of supreme strategic direction brought about in September 1916 by Hindenburg and Ludendorff who supplanted Falkenhayn.

A period of discord, following the death of Franz Josef, 21 November 1916.

First Period

Falkenhayn—Conrad von Hötzendorf

This period produced difficulties such that on several occasions a complete rupture seemed imminent between the two chiefs of staff, whose personal relations were particularly tense. Liaison between the two GHQs was poor, the two chiefs did not understand each other, on both sides there were accusations of bad faith. The collaboration procedure of the two chiefs of staff, which consisted of discussions without conclusions, was odious and conducive to all sorts of misunderstandings.

After Bulgaria's entry into the war, it was unanimously decided to wipe out Serbia. But the operation involved Austrian, German and Bulgarian troops, and it brought up the very thorny question of command. The German GHQ with great difficulty secured Conrad's agreement that the three armies should be placed under Mackensen's orders. And as the Bulgarians refused to accept subordination to the Austrian GHQ, the matter of supreme direction was finally passed over in silence in the military agreement signed on 5 September 1915.

Nor did success smoothe down the difficulties of command and cooperation.

Conrad desired, in fact, to liquidate the Balkan situation by the conquest of Montenegro, to throw the Allies into the sea, occupy Salonika and clear up the Rumanian question. By his offensive against Montenegro he confronted Falkenhayn with the accomplished fact and nearly caused a rupture prior to Christmas, 1915.

There was the same disagreement with regard to the 1916 operations on the Western Front, where the greatest confusion was observed among the Central Powers, in contrast with the effective direction exercised by Joffre on the Entente side.

Conrad was thinking only of an offensive against Italy, while Falkenhayn wanted Austria to safeguard the defensive fronts in order to permit the German armies to engage in an offensive action on the Western Front. The result was the execution, by Austria alone, of an offensive against Italy while Germany prepared for the attack of Verdun. Conrad was stopped after initial successes against Italy in the Trentino, and his eastern front, depleted of its forces for the Italian offensive, collapsed before the Russian attacks.

From that time on the position of Conrad was badly shaken and a movement was set on foot, within the Austrian army itself, in favor of a German direction.

Second Period

Establishment of a Supreme Direction

In June 1916, a none too satisfactory solution to the problem of strategic direction was reached on the Eastern Front by having Hindenburg command the sector from the Baltic to Lemberg, and by giving command of the southern half to the Archduke Charles, with von Seeckt as chief of staff.

But the idea of entrusting supreme direction to the German Emperor was making headway, and on 6 September Hindenburg and Ludendorff completed negotiations which were signed by Germany, Austria, Bulgaria and Turkey. The signatories agreed that:

The Emperor of Germany would exercise supreme command and would have the several GHQs under him.

The German GHQ would be charged with joint plans of operations and would issue directives in the name of "the supreme war direction."

In case the Austrian GHQ did not approve the decisions of "the supreme war direction," the Emperor Wilhelm was to reach an agreement directly with the Emperor Franz Josef.

The coalition was rewarded with immediate success under their new agreement by the crushing of Rumania. But this was the only important success because the death of Franz Josef, 21 November 1916, opened once more the problem that had just been solved.

Third Period

The new Emperor Charles detested the Germans and reproached the Austrian GHQ for having allowed itself to be dominated by them. He decided to take command in person of all Austro-Hungarian forces, and it thereupon became necessary to alter the agreement on "the supreme war direction." New negotiations resulted in an agreement which gave nobody the authority to command the forces as a whole for it made such authority dependent upon additional negotiations.

It was in vain that the ringing successes won in Italy (the Tolmino break-through) in the fall of 1917 and the initial German successes in France in March 1918, reawakened a certain enthusiasm in Austria. Soon after she was dazed by the reversal of the situation on the Eastern Front, and declared herself ready to negotiate a peace.

Unity of command had gone down in defeat, at the very moment when it would have been indispensable. The Central Powers had allowed success to lead them into the belief that occasional unity of command could substitute for permanent unity of command.

III—Teachings and Conclusions

It should be apparent, from the foregoing discussion, that the conduct of a coalition war implies the prompt establishment of a *strategic direction* of the whole, as well as a *unified command* of all allied troops in each theater of operations.

Strategic and Political Direction of the War

Strategic direction involves more than a war plan. It should cover the organization of armies, the intensification of their recruitment and that of manufacture, the allotment of resources to theaters of operations, the consequences to be expected from the intervention of this country or that, the economic struggle from the standpoint of military objectives to be attained, etc.

Such strategic direction cannot be conceived without a previous political agreement among the governments. In practice such an agreement will not have been provided for, but once reached it should be ceaselessly revised and kept up with the profound changes that war will bring to the existing political order as well as to the disarranged economic order. If such political agreement exists, political direction becomes easy and strategic direction presents no insuperable difficulties. Political discord, such as existed among the Central Powers after the death of Franz Josef, will not permit of concerted action.

Although the Central Powers entrusted the supreme direction to one man, Emperor Wilhelm, and operated very successfully under that direction until political discord intervened, it does not seem necessary that strategic direction should be conferred upon any one man. General Joffre in June 1915, and General Foch in 1917 and 1918, envisaged only a *directing agency*, consisting of the military commanders or the chiefs of staff of the principal armies.

A desirable solution to the problem of strategic direction would resemble the plan adopted by the Allied Governments at the Rapallo Conference in November 1917, and would consist of:

(1) A political direction agency including the prime minister and a minister of national defense of each government.

(2) A strategic direction agency which should include the Chiefs of Staff of National Defense or the highest commanders of land, sea and air forces.

Unity of Command

Unity of command in the principal theater can assume such importance that a portion of the strategic direction will be entrusted to it. (This was the case with Marshal Foch in 1918.) So far as designation of the commander is concerned, the political agreement will probably be its basis. Personality cannot be disregarded in the selection, nor can confidence. History demonstrates to us that it is futile and dangerous to thrust upon allied governments a commander who fails to possess or who no longer possesses their confidence.

Among the elements capable of inspiring confidence are the man's personality, his qualifications and even his method of command as regards the allies. To his high character must be added an exact comprehension not only of the military situation of the allies, but also of their political, economic and moral situation; mastery in dealing with men, which presupposes a superior psychology; and, above all, the coalition spirit.

Regarding the supreme leader's method of command, there are two reefs of equal danger to be avoided. The first consists of shutting one's self up and corresponding by means of notes. The other consists of getting together for discussions without conclusions but with all sorts of misunderstandings. The Central Powers illustrated the ineffectiveness of such methods.

Conclusions

It is certainly difficult to visualize, other than from a theoretical viewpoint, the political and strategic direction of a coalition before it is formed. But General Debeney, a student of this subject, tells us in this connection:

> "Everyone knows that coalitions are usually not formed from one day to the next. They have been preceded by alliances or understandings, concluded in times of peace. Is it not in the clauses of these alliances or, more exactly, in their mechanism, that war coalition finds its form? And then, by acting upon this mechanism, the military force of the coalition may be arranged for?"

In any case, and in the absence of military agreements providing for a unified command along with the military force of the coalition, it is possible at least to train elements of interallied staffs. Such staffs cannot be improvised; they require officers who are trained long in advance, who know the military organization of possible allies and speak their language, and who are acquainted with the state of mind of the other armies.

Too much stress cannot be placed upon the necessity that the subordinates as well as the supreme commander be activated by the "coalition spirit." This spirit, not necessarily a privilege of military persons, finds expression in a few simple rules that may be stated thus:

(1) When a coalition has designated a directing authority, its first duty is to obey that authority.

(2) The function of that directing authority is not merely to prepare the plan, but to provide for its execution and to ensure that all national interests yield to the common interest.

(3) In the execution no trickery is permitted; each nation does its fighting within the definite scope of the plan.

(4) Moral discipline is indispensable to a coalition, and gives it its strength.

(5) Each nation, including every individual, should scrupulously observe the rules of honor, which remain as the supreme law, the law that guarantees the engagements entered into by commanders and inspires willing sacrifices by the troops in the higher interest of the coalition.

Incidents of the Polish Campaign, 1939: Engagement of the 3d Battalion, 63d Infantry Regiment, 20 September at Tomaszow

["Einzelschilderungen aus dem Feldzug in Polen 1939: Das Gefecht des III Battaillons Infanterie-Regiment 63 am 20. September bei Tomaszow," from *Militärwissenschaftliche Rundschau*, December 1939.]

Condensed by MAJOR WILLIAM H. SPEIDEL, *Infantry*

On the evening of 19 September the 3d Battalion 63d Infantry Regiment arrived at Huta Dzierazynskie and took up a position in rear of the left flank of the regiment.

Troops of one of our light divisions were engaged with a strong hostile force located near Zamosc (about 12.5 miles to the north) and also in the vicinity of Tomaszow. We had to reckon with the possibility that our regiment would attack in the direction of Tomaszow, where for two days a portion of the enemy's forces had been engaged in the great battle of Lemberg-Tomaszow. It was anticipated that the enemy would attempt a break-through toward the east and the northeast. Tarnawatka, south of Huta Dzierazynskie, was in flames. From Tomaszow there came the noise of battle. On Hill 325.8, toward the southeast, one company of engineers occupied a broad front facing southward. They had been summarily driven back toward the north during a Polish attack, but had retaken the above-mentioned hill. (Sketch 1.)

About this time we could hear a part of our own artillery firing toward the south from their positions immediately southeast of Tarnawatka. Simultaneously the engineer company called on the regiment for help. They claimed that due to the elongation of their outpost line they had not been able to withstand the force of the Polish attempt to break through during the preceding night.

The divisional artillery commander also expressed concern for his batteries. The 3d Battalion, therefore, was ordered to occupy Hill 325.8 with a reinforced company, whereupon the battalion commander issued the following oral order:

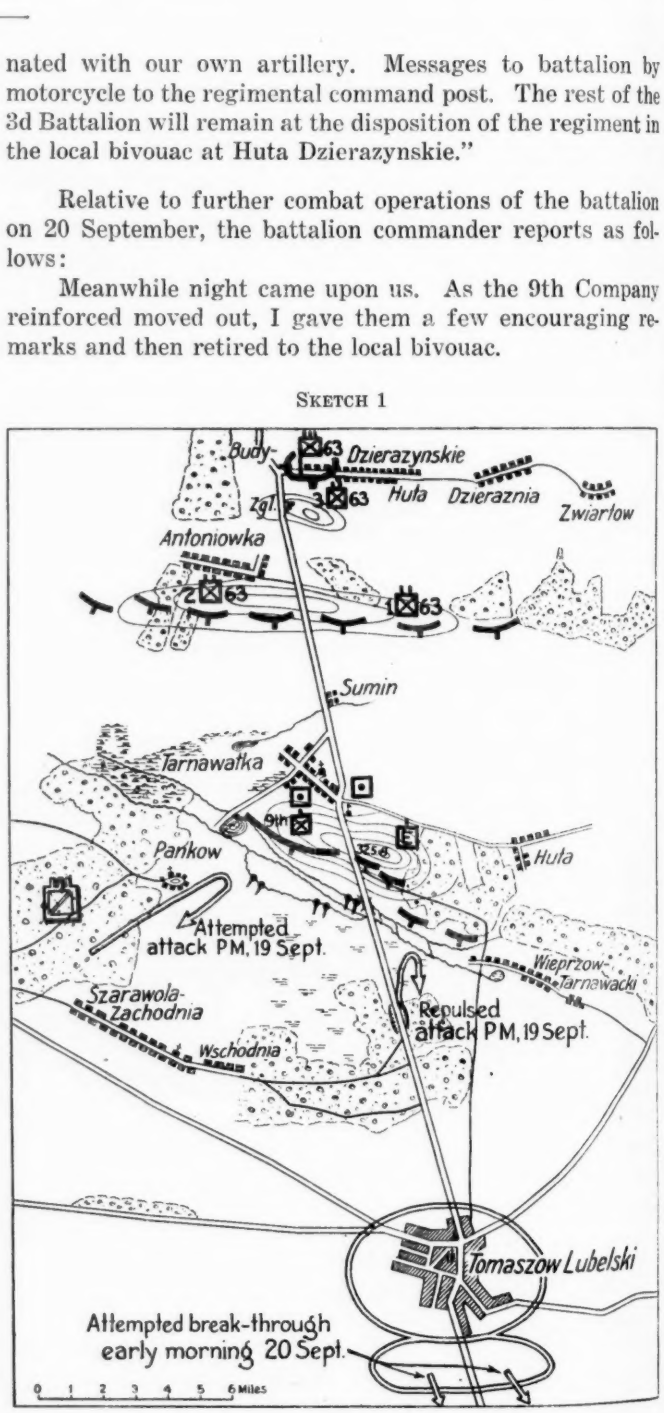
"A strong hostile force fighting in the vicinity of Tomaszow is making vigorous and relentless attempts to effect penetrations in all directions. A fresh attempt to break through toward the north and northeast, especially during the night, must also be reckoned with constantly. A company of engineers disposed on a broad front is holding the hill southeast of Tarnawatka (325.8). They have requested help. You can hear (pointing in the direction) our own artillery firing toward the south from their positions at Tarnawatka. This artillery is also in danger of a hostile attack.

"The 9th Company reinforced will move out immediately across the southeastern portion of Tarnawatka to the hill directly to the front thereof and prevent a hostile penetration on both sides of the main highway. The company will extend its defensive position to the right of the main highway up to the large lake. Combat posts along the Wieprzow Creek. Combat intelligence to be pushed southward. The company of engineers deployed to the left of the road is placed under your command. Fires to be coordinated with our own artillery. Messages to battalion by motorcycle to the regimental command post. The rest of the 3d Battalion will remain at the disposition of the regiment in the local bivouac at Huta Dzierazynskie."

Relative to further combat operations of the battalion on 20 September, the battalion commander reports as follows:

Meanwhile night came upon us. As the 9th Company reinforced moved out, I gave them a few encouraging remarks and then retired to the local bivouac.

SKETCH 1



SITUATION ON THE EVENING 19 SEPT.

Note: 9th Co. reinforced by Inf. Mortar Section and Portable Radio Detachment.

About midnight the 9th Company reported that it had occupied the defensive position as ordered and had established contact with the company of engineers and the artillery. There was evidence of fighting in the vicinity of Tomaszow, whence also came the sound of lively artillery fire.

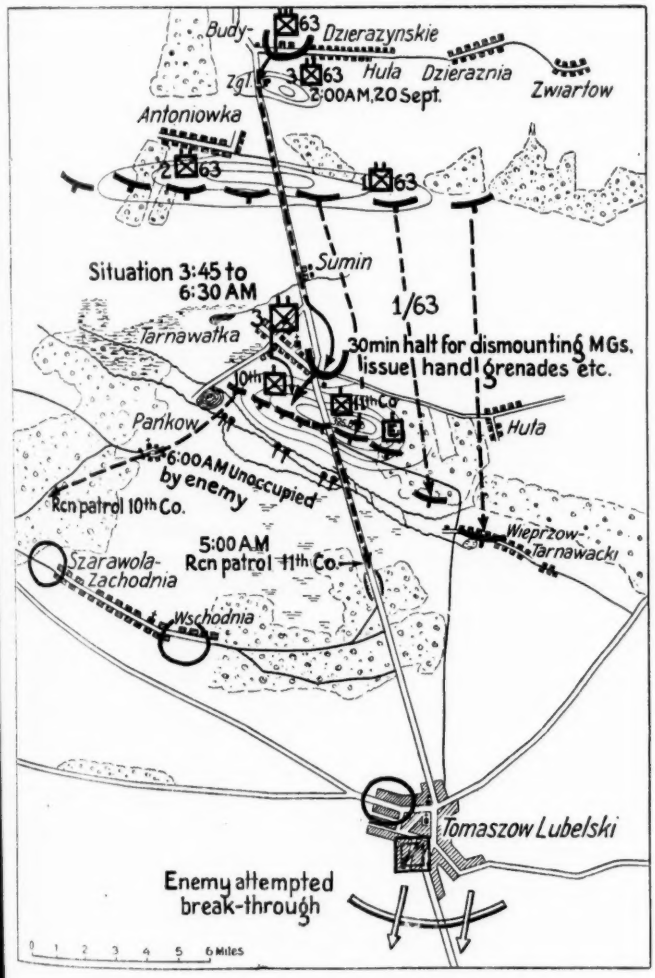
About 2:00 AM (Sketch 2) the 3d Battalion was ordered forward to the high ground south of Tarnawatka with orders that the entire battalion take over the mission of the 9th Company. About 3:00 AM the battalion (less 9th Company reinforced), with the infantry mortars divided between the 11th and 10th Companies, moved out of bivouac on to the highway leading to Tarnawatka. Having arrived at the southeastern part of the town, which meanwhile had undergone considerable burning, I halted the battalion, had the light machine guns dismounted and ordered ammunition, hand grenades, pyrotechnics, etc., to be issued. I took advantage of the time afforded thereby to contact the 9th Company and the artillery. At the recommendation of the company commander of the 9th Company, I moved forward with the battalion to the command post of the 9th Company, located about 550 yards southeast of East Tarnawatka. I also committed another rifle company during the night, as well as the infantry cannon platoon and parts of the machine-gun company. The 10th Company I placed in position to the right rear and then contacted the artillery battalion commander. According to the company commander of the 9th Company and the artillery commander, some enemy (estimated one Polish cavalry and infantry regiment) were hidden in the wood west of Pankow, and a strong hostile force in the wood north of Tomaszow. About 4:30 AM intensely heavy artillery fire and the sound of lively fighting reopened, estimated as coming from the vicinity south of Tomaszow—Lubelski.

We believed the enemy was attempting to effect a breakthrough toward the south. I reported my convictions to regiment by telephone and in writing and proposed to carry out our mission by attacking in the direction of Tomaszow. I made preparations so that my battalion could attack at once, with its left flank along the main highway, and coordinated my plans with the artillery commander.

At 6:30 AM the regimental commander issued the following order:

"Regiment attacks 7:00 AM with the 3d Battalion on the west of, the 1st Battalion on the east of, the highway. Objective the high ground south of the large wood northwest of Tomaszow."

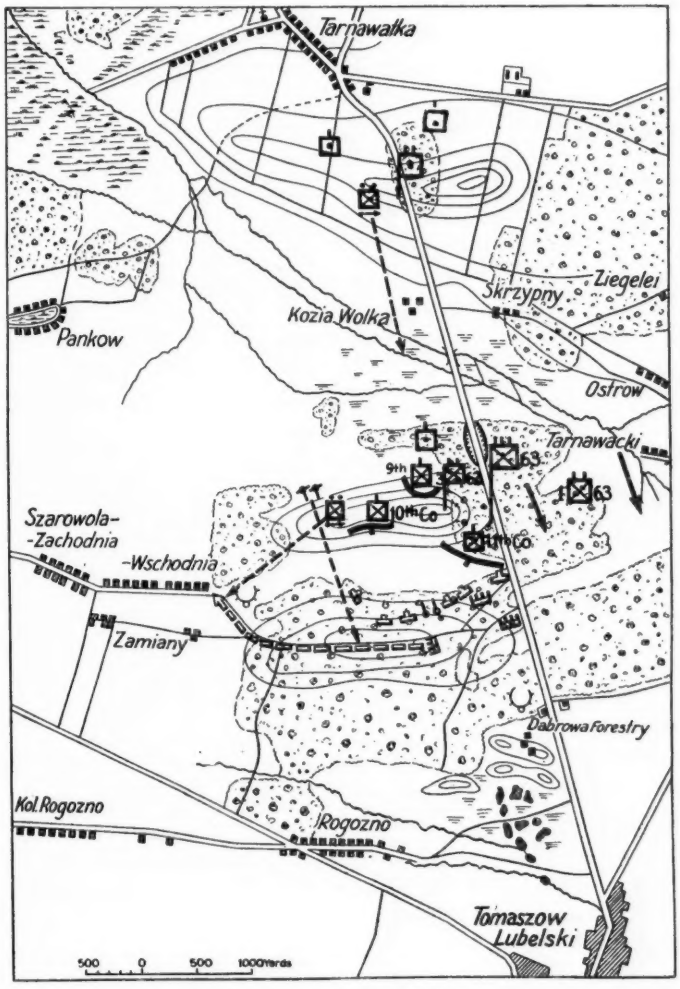
SKETCH 2



SITUATION UP TO 6:30 AM

Note: First reinforcing of Bn. with 1 Inf. Cannon Platoon.

SKETCH 3



SITUATION AS OF 9:00 AM

Taking up Pursuit following Artillery Preparation on Edge of Wood.

The area in which there are a number of ponds, located about 1,100 yards south of the Dabrowa Forestry, was assigned as the objective of the 3d Battalion.

Thereupon, on the high ground 1,650 yards north of Kozia Wolka, in the presence of the assembled company commanders, the leader of the attached infantry cannon platoon and the artillery commander, I issued the following oral order for the attack: (Sketch 3.)

"The enemy appears to be attacking Tomaszow from the north and south in order to force a break-through. Friendly reconnaissance patrols report Pankow unoccupied, but as yet have not been able to ascertain whether the enemy is still hidden in the wood west of Pankow, or in the wood northeast of Tomaszow. We must consider both possibilities.

"The 63d Infantry Regiment, with the 3d Battalion on the right of, the 1st Battalion on the left of, the main highway, will attack in the direction of Tomaszow, in order to effect the complete disintegration of the hostile resistance. Objective of the regiment the high ground north of Tomaszow, objective of the 3d Battalion the high ground immediately south of the Dabrowa Forestry.

"First objective of the battalion: the ridge 2,700 yards to our front, including the individual farms.

"Time of attack: 7:00 AM.

"Formation of attack:

"In the assault the 11th Company on the left to include the highway; frontage 550 yards. The 10th Company will follow at a distance of 330 yards echeloned to the right rear, deployed for the attack.

"The 9th Company in reserve will follow at a distance of 550 yards in rear of the center of the battalion until it reaches the small woodlot beyond the swamp (875 yards south of Kozia Wolka).

"The heavy infantry mortars will remain attached to the rifle companies.

"A machine-gun section, from position on this hill, will support the advance of the battalion across the marsh and will prevent any hostile flanking movement from the wood east of Pankow. It will follow the advance as soon as possible. The bulk of the heavy machine guns will accompany the assault company and render immediate support to the attack whenever resistance is encountered. I believe that the attack can be advanced very quickly once we have reached our first objective.

"The infantry cannon platoon, attached to the 11th Company, will accompany an assault group that will push forward along the road. Its mission is to crush the resistance of the enemy with direct fire and disorganize him.

"The artillery battalion to cover the advance of the battalion across the marsh by firing on any enemy appearing on that hill or along the edge of the wood, and to support the attack.

"The artillery liaison officer to accompany me. Any hostile action, from the vicinity of Pankow, directed against the right flank of the battalion must be crushed by switching a part of the fire.

"I will follow the right flank of the 11th Company at a distance of 330 yards. The next battalion command post will probably be either that house over there (Kozia Wolka) or the few, somewhat separated, high fir trees in the wooded area west of the main highway.

"Messages via radio of 10th and 11th Companies."

While the company commanders were issuing orders, a few noncommissioned officers with motorcycles were reconnoitering the main highway leading to Tomaszow.

At 7:00 AM the battalion attacked. While approaching and crossing the marshy ground near Kozia Wolka, we encountered no hostile fire. While following the right flank of the 11th Company and crossing the marshy Wieprzow Brook, the noncommissioned officer sent out by the 11th Company, returned with the following message: "Strong enemy forces along the entire highway. There should be about 20 to 30 pieces of artillery there. We surprised about 50 Poles. They are being taken to Tarnawatka by a member of my patrol. According to one of the prisoners the enemy have artillery in position along the edge of the wood over there for the purpose of mowing us down when we arrive within 50 yards of the position." I realized that we could expect strong resistance along and to the right of the main highway, and that the attack would prove more successful if it were extended along a broader front. I therefore ordered the 10th Company to contact the 11th Company with its left flank and to advance the attack on a frontage of 550 yards. About 7:45 AM the 10th and 11th Companies reached the first objective, an elongated hill covered with underbrush and scattered groups of buildings, about 1,650 yards south of Kozia Wolka (Sketch 3). The battalion staff arrived at the battalion command post, the previously designated group of trees, about 330 yards north of the right flank of the 11th Company. The 9th Company, that had been required to follow immediately in rear of the battalion staff as battalion reserve, followed at a distance of about 1,100 yards, as the reassembling of the widely separated elements along the broad front had caused some delay. At this time a prisoner was brought to me. He also claimed that strong artillery and several companies of infantry were hidden in the wood, and that parts of the enemy artillery were in position along the edge of the wood in front of our position for the purpose of firing on us when we arrived within closer range. This information led me to believe that the wood was occupied by the enemy and secured by rifle and machine-gun fire (possibly firing from trees). Two enemy machine guns had been detected mounted on a woodshed. As I desired particularly to have the 9th Company continue the attack, I decided to press forward after first subjecting the enemy in the wood and along its edge to a fitting artillery preparation. Through the artillery liaison officer and by telephone to regiment I requested an artillery preparation be laid down on the edge of the wood. I also requested that the artillery battalion cooperating with our battalion displace one battery forward to a position immediately in rear of the battalion command post, in order that it might be available for immediate action against the sporadic cropping up of centers of resistance. Regiment agreed to have our light, and one heavy, artillery battalion lay down a preparation between 8:30 AM and 8:45 AM. The forward displacement of one battery was likewise carried out.

Meanwhile the battalion was ordered to continue the attack and all heavy weapons were moved forward. From

the vicinity of the main highway we could hear heavy machine-gun and rifle fire. From the edge of the woods in front of us came intermittent machine-gun and heavy rifle fire (firing from trees) directed against anything that moved.

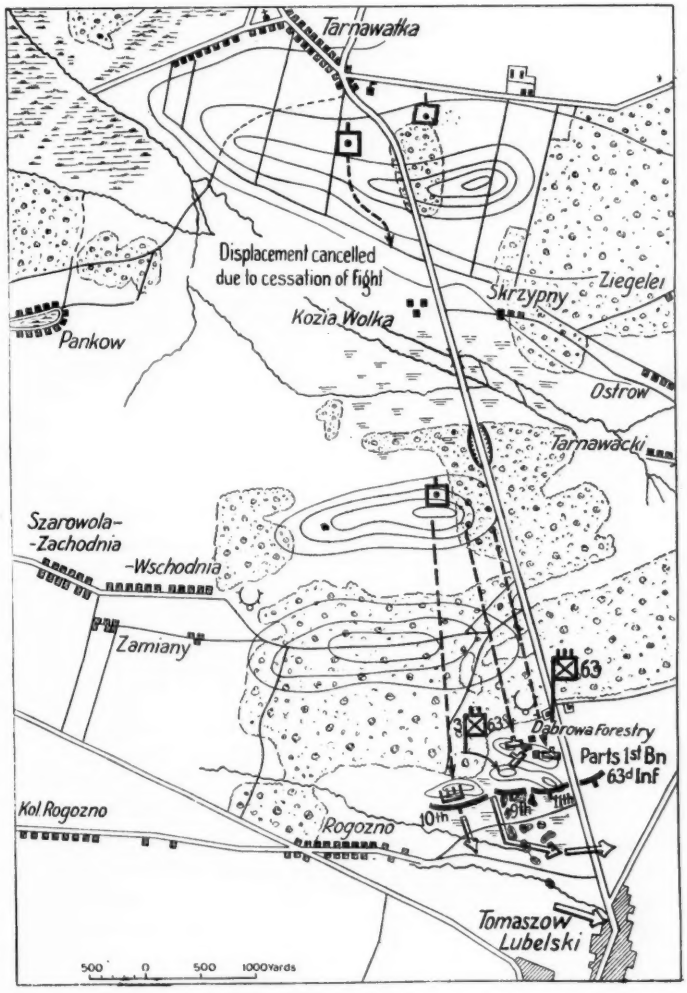
About 8:40 AM the regimental commander informed me that negotiations for surrender were being considered. I informed him that I would continue the attack as soon as the artillery preparation was lifted and the battery, which had been so ordered had moved forward. About 9:00 AM it was reported to me that this battery would shortly be prepared to open fire. The 10th Company reported to me than an enemy battery had withdrawn from the edge of the wood toward the west and that they had fired on this battery with infantry mortars and heavy machine guns. Observers from the battalion staff and the 11th Company reported to me that they had seen individual enemy troops running back and forth along the edge of the wood, and that it appeared as though the enemy were about to abandon their positions. I decided immediately to take up the pursuit.

Shortly after 9:00 AM the 10th and 11th Companies attacked the edge of the wood. Weak rifle fire was directed against the left flank of the 11th Company and some machine-gun fire against other of our troops. The enemy machine guns on the edge of the wood were covered by fire from the forward battery. The 10th Company and the right flank of the 11th Company advanced hesitatingly toward the edge of the wood. Before the left flank of the 10th Company, the fire of the forward battery or one farther to the rear was falling on the edge of the wood. In spite of repeated shooting of green signal lights (it was understood that a green signal light would indicate a request to increase the range of artillery fire 2,200 yards), the fire of this battery could not be interrupted. In order to avoid delay, and to deny the enemy any time in which to reorganize his resistance, I ordered the left flank of the 10th Company to continue the pursuit and circumvent our own artillery fire.

During the advance of the battalion through the wood, our staff suddenly came upon a gap in the wood between the assault waves of the 10th and 11th Companies. The sound of fighting on the main highway had stopped; in the wood we could still hear considerable rifle firing. In order to maintain direction I ordered: "March toward the sun." About 880 yards north of the southern edge of the wood I sent forward a battalion staff sergeant along a road in the wood in order to ascertain whether this road lead southward. Whereupon the staff sergeant suddenly came upon a mass of Poles and knocked their officer down. The Polish soldiers then threw down their arms and surrendered. The staff sergeant returned with about 40 prisoners. In order to secure the advance of the battalion staff I ordered a patrol, selected from the 9th Company, which was following immediately in our rear, to precede the battalion staff and mop up the wood on both sides of the road. Without encountering further resistance—a number of Polish soldiers had thrown away their rifles and surrendered—the battalion staff arrived at the southern edge of the wood simultaneously with the advanced elements of the 9th Company. We could see nothing of the 11th Company on our left. It was still hidden in the wood. To the right front were parts of the 10th Company that had reached their objective, whence the attack was to be continued after the necessary supporting fires had been provided for. From the position of the battalion staff we could see that the high ground was occupied by a great number of enemy riflemen and machine guns engaged in firing on the 10th Company. Many enemy riflemen and machine guns directly in front of the battalion staff were delivering flanking fire against the left flank of the part of the 10th Company that had pushed forward. Their entire flank was exposed. In order to relieve the 10th Company and to seize the hill directly south of the edge of the wood, a position which appeared to present a commanding situation with respect to Tomaszow (mainly there are no ponds as shown in the sketch, the area consisting largely of dried up, partially marshy, deeply cut troughs and depressions), I decided at once to commit the 9th Company to fill the gap between the 10th and 11th Companies.

The 9th Company, deploying as it came out of the wood, completely surprised the Poles with flanking rifle and machine-gun fire, and within a few minutes had captured the dominant high ground, thereby causing the rapid collapse of the hostile resistance confronting the 10th Company. Some stormed a strongly occupied hill, close to the edge of the wood; a hostile battery, that during the attack had been

SKETCH 4



FINAL SITUATION AS OF 10:15 AM

(Followed shortly thereafter by Cessation of Fighting; that Evening Bivouac on Battlefield.)

firing on the 11th Company but was now half limbered up, was captured; then they pushed on to another hill which dominated the Tomaszow valley.

Shortly before 10:00 AM the entire battalion had arrived on the dominant heights north of Tomaszow—the objective as ordered by regiment—and was prepared to continue the pursuit. The enemy fleeing toward Tomaszow and the east were taken under annihilating, light and heavy machine-gun fire.

While issuing brief orders to provide for the forward movement of the infantry cannon platoon and the forward displacement of the artillery, I received orders from regiment that negotiations for surrender were in progress, that the fire was to be adjusted and the present line held.

A few hours later—meanwhile a great number of prisoners had been brought out of the fields and buildings—it was announced that the enemy had agreed to surrender. The regiment's attack against the hostile artillery, striking the enemy in the rear at Tomaszow, had no doubt contributed to the final capitulation of the enemy. The regiment ordered that the line now occupied should be strongly secured and that the battalion would bivouac that night on the battlefield.

While taking over the captured officers it was learned that about 20 guns were in the wood north of Tomaszow, among these being batteries whose mission and desire had been to annihilate us had we advanced within closer range.

In the 3d Battalion's zone of attack an enemy battalion had been employed to secure the artillery against attack from the north. Although a large number of the artillerymen were exhausted, the officers of the above mentioned battalion had been determined to resist to the end. Some of the men claimed that one officer had threatened to use his pistol on anyone who would not resist to the end. Many Polish officers had been shot down in battle by our men. I asked one officer why they had put up such a useless fight, and he answered that they had been fighting for their honor. When he heard that the division had surrendered and that the capitulation had been ordered by the Polish general, he was deeply moved. All companies agreed that these Polish officers had fought with great tenacity. It was also confirmed by the prisoners that the artillery concentrations on the edge of the wood had resulted in a panic. An enemy battery, in position on the edge of the wood, which was to have opened fire after we had made another bound, was driven off and, except for the guns and horses abandoned, they turned and fled. That the battalion suffered but slight casualties (in all 4 dead and 6 slightly wounded) during the fighting in the wood, despite the lively hostile rifle fire, can be attributed mainly to the fact that our artillery fire and relentless attack confused the enemy and caused him to fire without aim. About 100 dead Poles were counted in the zone of action of the 9th and 10th Companies alone.

During the course of three and one-half hours, including one hour required for the preparation of the attack, the battalion advanced four miles, attacking across an area consisting largely of wooded terrain, and completely disposed of an enemy battalion including strong artillery. The prisoners taken were 7 officers and 572 men. We captured 16 guns including some pieces of heavy caliber; 9 antitank guns; a vast number of light and heavy machine guns, rifles, trucks, horses and other matériel.

Teamwork Between the Artillery and Infantry in the Defensive up to the Withdrawal to the Main Line of Resistance

["Zusammenarbeit von Artillerie und Infanterie in der Verteidigung bis zur Zurücknahme in das Hauptkampffeld," by Major General v.Tittel. Translated in Translation Section, The Army War College, Washington, D.C., from *Militär-Wochenblatt*, 13 October 1939.]

Condensed by CAPTAIN M. R. KAMMERER, *Infantry*

The form of tactics discussed here is one which requires much training. It is one which affords an opportunity to assign combat missions to individual batteries in contrast with the typically modern employment of artillery by battalions. It does not mean that the artillery battalion commander loses control of his battery for we shall see that the battalion commander continues to have an important influence upon the individually operating batteries.

Further we shall discover the necessity of teamwork between the infantry and the artillery in action in front of the main line of resistance. It is here that we find those desirable situations in which a single battery may cooperate with the infantry. The subject should be of interest to infantry officers as well as to artillery officers contemplating training in this form of tactics.

I—The Action of the Forces Employed in Front of the Main Line of Resistance

Action in front of the MLR frequently consists of a delaying action. It is difficult for the artillery to determine the exact moment for evacuating the observation post and for abandoning the gun positions.

Furthermore, it is vital for the artillery commander to prepare this action in detail. The arrangements or assignments for the action are governed by well-known principles. However, provisions must also be made to coordinate the withdrawal of the artillery with that of the infantry; that is, to regulate the time at which the individual batteries must change positions and to determine whether they must withdraw by echelon or as a battalion.

In order to establish the necessary bases, the infantry commander must clearly indicate his intentions to the artillery commander in one of the following manners:

(a) "I shall evacuate the line of resistance at H hour." Thus the mission up to H hour is defensive. The German Regulations no longer provide for this situation, preferring one of the following:

(b) "I shall evacuate the line of resistance when hostile forces resume the attack from such and such a line." This will apply if the line of resistance is in wooded country. Although it is not a customary mission of the artillery to support the infantry in wooded country, the situation may arise in which the artillery is employed in that kind of terrain for the purpose of exploiting its range for harassing or counterbattery fire. The infantry, in this case, becomes an artillery protector. It must not ask the artillery to facilitate its withdrawal; on the contrary, the infantry should hold its position until the artillery has reached safety.

If the infantry withdrawal requires artillery support, another battery, already occupying a position in the rear, must lend the support. It must fire upon the advancing enemy until the infantry has broken contact and gained sufficient distance to the rear. If its fire is accurately placed, it may be maintained for a certain length of time, without observation. This is preferable to map firing and may serve to deceive the enemy.

The withdrawal may be followed by action in the zone between the outpost line of resistance and the main line of resistance. Unless advanced observation posts are established artillery is of little avail in this case. It must relay its observations by its own wire, which must be laid so that the observer can establish contact at any suitable observation point.

(c) "I shall evacuate the line of resistance when the hostile attack has advanced to such and such a line." Such a designation of the hour of withdrawal is used in open country. If the terrain in rear, as well as in front, of the line of resistance is open, the withdrawal will have to be started sooner than it would if a covered withdrawal were available. The artillery must inform the infantry as to how much time the battery requires to reach cover. This, in turn, governs the distance to which the infantry may let the enemy approach. On this type of ground, artillery protection is essential to the infantry withdrawal. The infantry must notify the artillery of the time at which the rear guard will evacuate the line of resistance. The artillery commander then must see to it that the fire of his guns, from concealed positions in the rear, covers the line of resistance as long as any friendly troops are left there; and that the artillery opens fire upon the evacuated high ground as soon as the enemy reaches that ground. That calls for a change of positions by echelon; if the artillery is weak, by sections within the battery, or, if the artillery is strong, by batteries within the battalion.

There must be complete agreement between the artillery and infantry about the time at which the artillery elements are to move back. Neither should be content with such phrases as: "I shall hold my position as long as possible," or "I shall let you know when I fall back."

Infantry and artillery being mutually dependent upon each other in operations of this type, it is essential that the requirements of both be carefully weighed against each other. The decision lies with the sector commander. In peacetime exercises the necessary discussion is frequently omitted.

German Regulations call for "strong" artillery to support these advanced forces. The term "strong" is of course relative. If weak infantry—a company for example—is employed, a battery may be considered "strong." If an infantry battalion is involved, the artillery likewise must be at least a battalion. Otherwise it will be difficult to change position by echelon.

Frequently, the role of the commander of the artillery battalion fails to receive due attention in exercises conducted by individual batteries, because of the desire to give the battery commander an opportunity to make independent decisions. That is a tactical error. Even though the individual batteries may have perfectly clear instructions, the subsequent action might produce all kinds of surprises. For instance, the enemy might suddenly break through the friendly lines; adjacent battalions might be forced to withdraw; or hostile fire might prevent the battery temporarily from changing position, in which case the infantry may be requested to continue holding its position for the time being.

The abandonment of a line of resistance at night is an easy problem and need not be discussed here, for, as a rule, the time of withdrawal is optional.

II—The Advanced Position

An advanced position may be established to deceive the enemy; in that case, it has served its purpose once the enemy has committed to action a large portion of his forces and has opened fire with his artillery. Or it may be established for the purpose of holding favorable observation points for the friendly artillery and to deny the enemy access to these points, in which case it may also serve to deceive the enemy.

The advanced position may be located a considerable distance in front of the MLR. The withdrawal from this position, under cover of artillery, is similar to that of forces withdrawing from outpost positions. Depending upon whether the advanced position is located near the MLR or at some distance from it, the unit employed in that sector may receive orders to hold out until the entire front is attacked.

The artillery action, in this case, will usually be similar to that described under heading I.

Here, too, it is essential to reach an agreement in advance. This applies not only to the commanding officers in the advanced position; equally important are clear orders from the artillery commander in the main defensive line. The decision to withdraw the advanced batteries must not be made too prematurely. This presupposes that the artillery in the main defensive line opens fire at an early moment. The advanced battery must be assured of communication with its battalion commander, in order to be able to inform him of the situation. Only in this manner will he be in a position to open fire in time and to block the observation points and permit the forces of the advanced position to reach safety.

III—The Outposts

Usually the outposts are accompanied only by artillery observers, while their respective batteries remain immediately in rear of the MLR. If the battery, in this position, is exposed to any hostile forces, or if the battery is in front of the MLR, the outposts must hold their ground until the battery has been withdrawn. However, in these circumstances, the outposts are really an "advanced position." We have intentionally developed the situation in this manner, because the infantry often fails to consider the artillery. Therefore, it devolves upon the artillery to call attention to the fact that the "advanced position" distinguishes itself from the "outposts" in that it includes artillery. The distance from the MLR is of no consequence in this connection. Measured in yards, the outposts may be located farther to the front than an advanced position. The point is that the outposts are within the effective range of the light artillery of the MLR. The word "effective" means that the artillery can cover the line of outposts with observed fire. While the infantry may call this use of different definitions a splitting of hairs, it is vital to the artillery for it must act accordingly.

Teamwork between advanced observation posts and the outposts is of greatest importance. Orders must be issued stating which infantry group is to cooperate with the observation post. Together they must form a team. Otherwise, the artillery observer will be unable to carry out his mission satisfactorily; and the artillery might not learn when to open fire to cover withdrawal of the outposts. The latter, as a rule, executes this withdrawal under concealment, and the friendly observers likewise will be unable to see them. Pyrotechnics are dangerous, for they might reveal the time of withdrawal to the enemy.

IV—Employment of Advanced Observation Posts in Front of the Outpost Line of Resistance

This method is used particularly in wooded country, where the enemy is at a distance. Although the Regulations do not mention this situation, it may serve the artillery as an excellent means of adjusting harassing fire at long ranges. It is preferable to map firing and more rapid than fire adjusted by air observation. The far-advanced artillery observer must have at his disposal strong cavalry or armored car scouting elements. He directs the artillery fire by radio. He establishes his observation post in a concealed location along the route of advance from which point he may direct the fire upon the hostile columns that might emerge from a village or woods. The battery prepares its fire by map. The observer directs the time of fire and adjusts the range. Harassing fire executed in this manner is highly effective.

Here, too, teamwork is essential between the leader of the scouting party and the artillery observer. If possible, both must retire simultaneously. This implies that the scouting party must be strong enough occasionally to resist small hostile scouting elements, for the artillery observer, with his radio equipment, cannot move very rapidly.

This method has a harassing effect especially in wooded country. The French in 1914, were masters of this method of artillery employment, despite the fact that they possessed at the time only wire communications or, on their own soil, the local telephone and telegraph system.

V—Signal Communications

Radio communication is so highly developed now that the use of wire, especially in mobile warfare, is avoided if possible. It must not be forgotten however, that:

(1) Radio communication may be intercepted by the enemy.

(2) The complicated equipment may easily become damaged.

(3) Its large size may render its use difficult.

(4) Its great weight may impede the mobility of the artillery observer.

For these reasons, the use of wire communication cannot be entirely neglected.

VI—The Advance Details

A battery in the act of withdrawing, particularly by echelon, is vitally dependent upon its subordinate leaders. Not more than one officer or noncommissioned officer should be detailed from the battery for the purpose of coordinating the preparations for withdrawing. If more are necessary they should be selected from batteries in the main battle positions.

The Carol Line

["La Ligne Carol," by Robert Lambel, from *L'Illustration*, 9 March 1940.]

Condensed by Captain M. R. Kammerer, *Infantry*

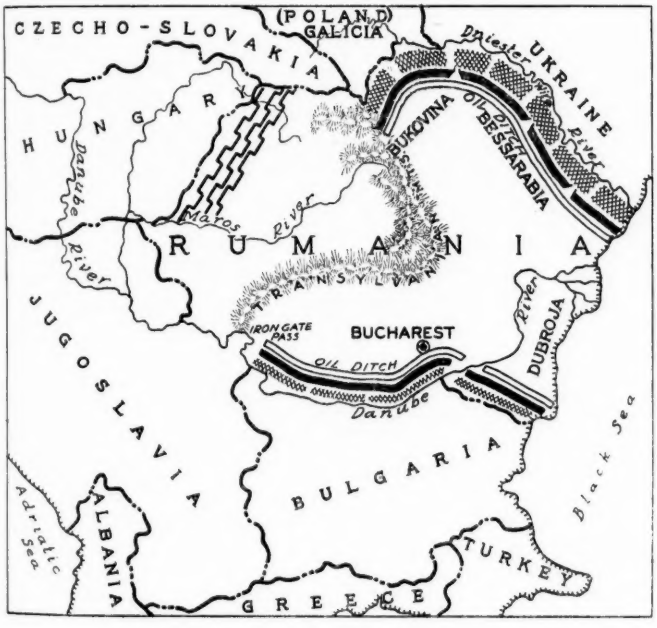
France has its Maginot Line; Germany, its Siegfried Line; Finland had its Mannerheim Line. Rumania, too, possesses a system of fortifications—the Carol Line.

Surrounding her 115,000 square miles of territory, Rumania has a frontier of 2,125 miles, 280 miles of this frontier are on the Black Sea. The remaining 1,845 miles, until recent territorial upheavals, were shared with Rumania by six neighboring states: the U.S.S.R., Poland, Czechoslovakia, Hungary, Yugoslavia and Bulgaria. For protective assurance against these six neighbors, Rumania had counted on friendship and political agreements. With Czechoslovakia and Yugoslavia she had formed the "Little Entente," which appeared to be sufficient protection against possible Hungarian ventures. Similarly, the Balkan Entente—composed of Rumania, Yugoslavia, Greece and Turkey—kept Bulgaria at a respectful distance. As far as Poland was concerned, Rumania had always been on the best of terms with her, and a military pact united the two countries still more in case of Soviet aggression.

It was in the begining of 1937 that some uneasiness began to be felt. The turbulence of National Socialist Germany was having repercussions throughout Europe. Ru-

mania found the most pressing danger in the direction of Hungary. So she fortified her Hungarian frontier. This frontier is about 250 miles long, only 20 miles of which have a natural protection: the Maros River. The remaining 230 miles are flat and open to invasion. The first fortifications were constructed, according to plans drawn up by a Rumanian general, General Staff. Originally they were no more than simple field fortifications along the frontier. The local population was called upon to assist in their construction. The original plan was eventually improved upon, and today there are three strongly fortified lines, one behind the other, between the border and the natural barrier furnished by the Translyvanian Mountains. But until September, 1939, this was the only defensive system in Rumania, and the rest of her land frontiers were unfortified.

Recent events in Europe have changed this situation considerably. Late in September when Poland ceased to exist as an independent state, Rumania found the 215 miles of what had been the Polish-Rumanian frontier suddenly occupied by Soviet troops. Adding the 508 miles of Russo-Rumanian frontier traced by the Dniester River between Bessarabia and the Ukraine, Rumania found herself in contact with the U.S.S.R. along a front of 727 miles: and the attitude of her neighbor was becoming more and more puzzling. Behind that frontier were concentrated 2,000,000 Russians who might, any day, go into action. To oppose them Rumania had only a very few regiments in Bessarabia and in Bukovina, and her fortifications in these provinces were not worth mentioning.



RUMANIAN FORTIFICATIONS

That is why, since last September, Rumania has worked strenuously to construct fortifications that have kept more than 100,000 men busy. By the end of April, these fortifications were pretty well finished, and Rumania, in case of Soviet attack, felt capable of resisting the attacker behind her Carol Line.

The fortifications facing Hungary are extended by the Carol Line to the north and northeast, opposite the sub-Carpathian Ukraine, eastern Galicia and the Soviet Ukraine. The line also covers, in the southeast, the Bulgar-Rumanian frontier from the Black Sea to the Danube and it supplements the natural barrier offered by this river as far as Yugoslavia. The total length of these lines of fortifications is more than 1,250 miles.

The Carol Line is very unlike the Maginot or the Siegfried Lines. It had to be built rapidly, keeping particular conditions in mind. It is composed of three different elements. First, there is in the plain, and opposite the Ukraine in particular, an immense network of barbed wire several hundred miles in length and several hundred yards in depth. Behind that there is a kind of Chinese wall. Built of concrete this wall is about 6½ feet high and about 10 feet thick, guaranteed to stop mechanized forces. Here and there in the wall are openings, which may be closed by solid iron gates or blocked by "chevaux de frises" which can be charged with electricity. Finally, to complete the fortifications, there are wide, deep ditches, which eventually will be filled with that oil which Rumania possesses in such large quantities. And if an enemy should attempt to cross these ditches, the oil will be ignited and the Carol Line will become a veritable line of flames protecting the territorial integrity of the country.

The Russian Navy and Its Bases*

[From an article by Nicola Marchitto, in *Nazione Militare*, Rome, Italy, January 1940.]

Condensed by LIEUTENANT COLONEL E. M. BENITEZ, *Coast Artillery Corps*

The Italian Naval Almanac for 1939, gives the total strength of the Russian Navy, including the programs of 1937 and 1938, at 429,444 tons, a figure which puts Russia in the last place among the great naval powers, notwithstanding the fact that more than two-fifths of this figure is made up of ships under construction or planned. When the 1938 programs are completed, the great naval powers will have the following tonnage, disregarding the naval losses in the present war:

Great Britain	1,917,292 tons
United States	1,607,295 tons
Japan	1,111,483 tons
France	832,737 tons
Italy	680,806 tons

*There is little definite data concerning the Soviet Navy because the Russians, particularly during the last few years, have shrouded their naval construction program in the greatest of secrecy. Data given herein differs slightly from that given in "Jane's Fighting Ships, 1939."

According to the Italian Almanac of 1939, the composition of the Russian Navy, after the completion of the 1938 program is as follows:

Battleships.—Russia has only 3 battleships in service: the "Pariskaya Kommuna" of 23,000 tons, the "Okybrskaya Revolutia" of 23,600 tons and the "Marat" of 23,256 tons. These ships were built just before the World War (1914-1918), during the years when William II, "Admiral of the Atlantic," used to call Nicholas II, "Admiral of the Pacific." They were modernized in 1937, 1933 and 1931 respectively. Their speed is 23 knots per hour; their armament consists of 12-305-mm guns; 16-120-mm guns, 6-75-mm guns; 8 machine guns, 4 torpedo tubes (457-mm) and one airplane. Vertical protection is provided by armor with a maximum thickness of 255-mm; horizontal protection is afforded by an armored bridge, maximum thickness of which is 75-mm; the command tower, 250-mm; the firing turrets, 305-mm.

In addition to these three old battleships, which are now in service, there are two 35,000-ton battleships armed with 406-mm cannon on the building program.

Aircraft Carriers.—It is probable that none are in service at the present time, because the "Krasnoye Znamya" launched in 1936 and displacing 12,000 tons is said to be still in the process of being armed. It is claimed that two additional carriers each of 12,000 tons are in the construction program.

Light surface ships (cruisers), sub-category A: Of these there is one unit that has been in service since the first part of 1918 (and hence beyond the age limit) of 8,030 tons (speed 30 knots and armed with 4 180-mm guns); one unit in service, the "Kiroff," launched in 1936 of 7,700 tons and armed with 6 180-mm guns; three units (under construction) of the "Kiroff" type and three of 8,000 tons armed with 4-180-mm guns in the program.

Light surface ships (cruisers), sub-category B: Of these there is the "Aurora," beyond the age limits, of 5,622 tons (speed 17 knots); armament, 10-130-mm guns; the "Oktyabrya," beyond the age limits, of 4,250 tons (speed 11 knots, armament, 4-76-mm guns); the "Komintern" of 6,338 tons (speed 16 knots, armament 10-130-mm guns); the "Profintern" of 6,600 tons and the "Chervonaya Ukraina" of 6,934 tons both modernized in 1927 (speed 29 knots, armament 15 130-mm guns); and the "Marti" of 3,500 tons (speed 25 knots, armament 4-120-mm guns).

Light surface ships; sub-category C: (Torpedo boat destroyers and torpedo boats.) These are grouped as follows:

Number	*Name (Type)*	*Tons Each*	*Speed in Knots*	*Armament (Guns)*
3 (8 under construction)	Leningrad	2,890	35	5/130-mm
9	Uritsky	1,401	28–31	4/100-mm
1	Frunze	1,300	25	4/100-mm
2	Karl Marx	1,354	28	5/100-mm
4	Petrovsky	5,277	26	4/100-mm
4 (2 under construction)	Serp	700	33	2/100-mm
18	Sthorm	740	29	2/100-mm
8 old units		5,726	Beyond age limits	

Submarines:

Number	*Name (Type)*	*Tons Each*	*Knots per Hour*	*Torpedo Tubes*
1 (beyond age limit)	L-55	870	14	6
6 (beyond age limit)	Kommunar	618	10	4
15	Dekabrist	896	10	8
3	Garibaldietz	1,039	14	6
3	Pravda	1,000	....	8
4	Kommunist	330	12	4
30 (about)	Lin	600	....	4
44	Stcha (Chital)	600	....	....
51 (plus 3 under construction)	"Malodki"	200	12	2

To these main units we must add a considerable number of mine sweepers, gunboats, river gunboats for the Far East, mine layers, ship patrols, motor boats equipped with torpedo tubes (there seems to be more than 100 of these), auxiliary ships, icebreakers and similar craft.

So then the total of the Russian Navy as it would appear when the programs of 1938 are completed is considerable, but we must remember that the units in service are as a rule beyond the age limits or rebuilt a good while ago and that most of the Russian fleet is under construction, in process of being equipped or only in program.

So it seems that at the beginning of 1939 the following were under construction or in process of being equipped: 1 aircraft carrier of 12,000 tons, 4 cruisers of 7,700 tons, 8 torpedo boat destroyers of 2,895 tons, 20 submarines, 12 submarine chasers and two mine layers.

The various sources available give contradictory reports concerning the actual make-up and efficiency of the Russian Navy. Hence, it is considered advisable to discuss them, in order that they may be evaluated properly.

According to a report on the French Navy, annexed to the report of the session of the Senate on 17 December, 1937, the strength of the Russian fleet on 1 January, 1938, was as follows: 3 battleships, 1 cruiser, 22 torpedo boat destroyers and 16 submarines, in the Baltic, for a total of 110,611 tons; 1 battleship, 4 cruisers, 8 torpedo boat destroyers and 17 submarines, in the Black Sea, with a total of 78,903 tons. The total of the Baltic squadron and the Black Sea squadron was 189,514 tons. So then, up to 1937, it seems that the existence of only a part of these units, for a total of scarcely 189,514 tons, had been ascertained. From the table we can see that in the last few years, up to and including 1937, only the torpedo boat destroyers, the submarines and the special units (mine sweepers, mine layers) had undergone a slight increase, while there was in process of execution a program calling for 12 torpedo boat destroyers—10 of 700 tons and 2 of 1200 tons. As regards submarines at that date it is assumed that there have been put in service in the last few years in the Baltic fleet 3 of 896 tons and 3 of 1039 tons, while there were 17 other units with an average displacement of 900 tons for the naval forces of the Black Sea.

Russia had the caliber limit of the heavy artillery of battleships raised from 356-mm (14 in.) to 406-mm (16.2 in.) following the formal refusal of Japan to accept for the future this reduction of caliber.

Even at the close of 1937 the modernization of the Soviet fleet was the constant preoccupation of Moscow, because the weakness of the industrial equipment of the shipyards, the lack of experience and above all the deficiency of Russian

technique in the building of warships and of artillery impeded and retarded gravely the realization of the programs.

According to the German naval "Taschenbuch" of 1937 there were in this year 158 Soviet submarines, 71 of from 200 to 1,800 tons in the Baltic and in the White Sea, 37 of from 200 to 800 tons in the Black Sea and, 50 of from 200 to 800 tons in the Far East. But according to "Jane's Fighting Ships" (English) the Russian submarine fleet of that epoch did not exceed 60 units.

More recent reports, from a Dutch source, published by "Rivista Marittima" of November 1939, indicate that the increase in the Soviet navy during the last two years has consisted of the torpedo boat destroyer "Tashkent" built in Italy, 2 cruisers of the "Kiroff" class of 8,000 tons built in accordance with Italian designs and under the direction of Italian engineers, 9 torpedo boat destroyers of 2,800 tons, many submarines and of about 130 motor boats armed with torpedo tubes.

The submarine fleet is said to be made up of about 60 units of from 300 to 1,200 tons, 45 of 600 tons and 40 of 200 tons. There are said to be under construction: 1 battleship 35,000 tons, 1 large aircraft carrier and 30 submarines; and planned: 2 battleships of 35,000 tons and many cruisers of the "Kiroff" type.

According to "Le Yacht" of 26 August, 1939, when the Russian-American negotiations failed for the construction of battleships, there was started in Russian shipyards a battleship of 35,000 tons to bear the name "Third Internationale" based probably on an American design, and armed with 9-406-mm (16 in.) guns. A second unit of the same type is said to be under construction or at least the keels are about to be laid.

The cruisers are based on designs of Italian engineers. One of these is the "Kiroff." A similar one, the "Gorky," is almost ready to go into service and two others, the "Kribyshev" and the "Ordzhonikidze" are on the way.

The flotilla leader "Tashkent," built at Livorno, and the fastest in the world (44 knots), is in service. A similar one, the "Moskva," built at Nikolaev is in service in the Black Sea. The shipyards of the Baltic are said to be constructing 9 super-torpedo boat destroyers of 2,600 tons based on Italian designs: 3 are said to be in service already.

There is great uncertainty concerning the number of submarines, estimated at the close of 1938 at 150, including those under construction. The greater part of Russian submarines are of small tonnage (150-200) and hence, are suitable for coast defense only.

The Russian Navy is showing great interest in the Arctic seas by the construction of an entire fleet of ice breakers many of which, of 11,000 tons, have been assigned to the sea route on the north connecting Murmansk and Vladivostok.

The main interest of the Soviet navy has been turned to its fleet of torpedo vessels (torpedo boat destroyers and submarines) widely distributed in the seas which would constitute the possible theaters of naval warfare for Russia. The disadvantage of the great distances which separate these nuclei will be greatly reduced by the network of internal canals which are being lengthened and deepened. The White Sea and the Baltic are already connected by the Stalin canal and all that is lacking now are improvements on two other waterways making it possible for torpedo boat destroyers and submarines to pass between the Black Sea, the Caspian Sea, the Baltic Sea and the Arctic Ocean without being forced to go around Europe and Asia.

The connections on which work must still be done are the old Marinsky canal between Lake Onega to the north, the upper course of the Volga and a short stretch between the Don and the Volga on the south.

In the Japanese Diet, Commander Thomazi of the Japanese Navy, said that the Russians had 200 submarines many of which were at Vladivostok. Such reports have been denied. It is maintained that Russia has there at the present time 15 old submarines and about sixty new ones in service or under construction.

On the other hand nothing more has been heard of the numerous naval officers proclaimed enemies of the people and arrested in 1937; among these were the commanders of the four Russian squadrons.

The rebuilt Russian battleships of 23,000—24,000 tons cannot compare with similar units in other navies and not even with units of smaller tonnage. Russia's heavy and light cruisers, with the exception of those of the "Kiroff" type, are likewise out of date and inferior to similar ones of other powers. Today the actual number of submarines probably does not exceed 100 units and most of these have a limited radius of action and as a rule are not very effective.

An examination of Russian naval power would be incomplete without a discussion of the naval bases and the strategical possibilities which the Russian Navy has.

In the Far East, Russia is definitely inferior, as regards strategical situation, to the Empire of Nippon which blocks the only Russian base—Vladivostok—and has a formidable fleet which is large and efficient. In a war against Japan, Russia would have to limit herself to attacks against Japanese shipping and attempts to destroy the warships.

In the Black Sea, where she has the bases of Odessa, Sebastopol and Batum, Russia could act effectively against Rumania, assuming that the conflict would be limited to these two states. Even against Turkey Russia would be in a favorable strategical situation but in case of attack against Turkey more than one Mediterranean power would aid the latter and, hence, Turkey will be able to decide whether or not Russian submarines shall be allowed to pass freely into the Mediterranean.

Up until recently, Russia did not have any naval bases in the Baltic except Leningrad. Now, since Russia has the Esthonian bases of the Saareman (Osel) Islands and of Hiiuman (Dago) and of the city of Paldiski (Baltic Port) and the Latvian bases of Liepja (Libau) and Ventspils (Windau) she can breathe easier, but the predominant factor in that sea is still Germany. On the whole, therefore, Russia seems to be cooped up or blocked in the principal theaters of possible naval action.

Besides, according to Aleksandrov, instructor in strategy at the Russian naval academy, the mastery of the sea is useless for Russia and the latter should counter a possible blockade with only weak naval units. Such ideas were accepted in 1929 by the heads of the Russian Navy. It was only in November 1936 that Admiral Orlov declared himself

in favor of a great navy and it was not until 15 January, 1938, that Molotov declared that the USSR should have an ocean fleet in keeping with Russia's great mission. In fact, it was only in 1937 that the Naval Commissariat was organized.

In conclusion, Russia is in a strategical situation that is anything but favorable and has a navy that is weaker and less efficient than that of any other naval power and at the same time this navy is lacking in officers capable of directing it.

A Motorized Reconnaissance Detachment in the Polish Campaign

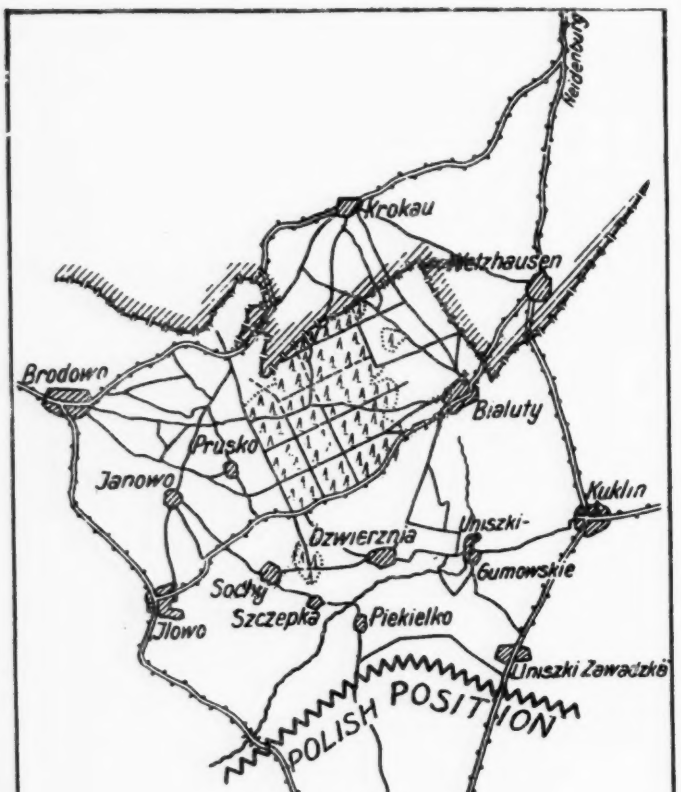
["Eine motorisierte Aufklärungsabteilung im Polenfeldzug," by Wim Brandt. Translated from the German in the Historical Section, the Army War College, Washington, D.C., from *Militär-Wochenblatt*, 15, 22 December 1939 and 5 January 1940.]

Condensed by MAJOR WILLIAM H. SPEIDEL, *Infantry*

This account deals with the activities of an SS (*Sturmstaffel*, or black-uniformed storm troops of the National Socialist Party) reconnaissance detachment, operating in Poland as a part of a mechanized division and commanded by the author, Wim Brandt.

MLAWA—PRZASNYSZ—CIECHANOW

The infantry of the division on our left crossed the border south of Neidenburg 1 September 1939, in order to advance on the Polish positions located a few miles to the south near Mlawa (Sketch No. 1). These positions consisted of concrete machine-gun nests connected by trenches and protected in front by barbed-wire and tank barriers (Sketch No. 2). The Germans had no information concerning the size of the area covered by this defensive system and the nature of its construction.



SKETCH NO. 1

SKETCH NO. 2

About 6:00 AM the infantry occupied Bialuty without encountering much resistance, and from there it continued its advance toward the south. At 6:40 AM the reconnaissance detachment was ordered to move to Bialuty by motor and to reconnoiter the country west of that locality, where, in the area west of the Bialuty Wood, a German infantry division was attacking southward. At 7:05 AM we crossed the Polish border at a point southeast of Krokau and shortly thereafter arrived at Bialuty, where we established our command post in the church. Near the southwestern exit of Bialuty we came upon a road block consisting of trees and concealed mines, an obstacle which presented but little difficulty, as we were able to pass around it quite easily despite our heavy transportation.

At 8:00 AM three patrols were sent out from the reconnaissance detachment with orders as follows:

Patrol No. 1 to reconnoiter the Bialuty—Brodowo highway as far as the western edge of the wood.

Patrol No. 2 to reconnoiter the road, leading through the wood toward the southwest, as far as the western edge of the wood.

Patrol No. 3 to proceed to Ilowo and, while en route, to post a picket at the southwestern edge of the wood.

Up to 8:40 AM reports had been coming in that the wood was clear of the enemy, whereupon the reconnaissance detachment proceeded to the southeast corner of the wood and halted. Here it concealed its vehicles in the wood, camouflaging them against observation from the air, and established a local outpost to the south.

In the meantime Patrol No. 3 contacted some Poles that were still facing northward; they occupied a position east of Janowo. They were fired on by our scout cars, an action which facilitated the advance of neighboring, friendly troops moving down from the north. This patrol also reported that there were no Poles in Sochy and that the adjoining division had reached Ilowo. The entire patrol then returned to the detachment.

Friendly artillery had been concentrating on the Polish positions since 10:00 AM. The Polish artillery responded and some of their fire covered the corner of the wood where the reconnaissance detachment was located. With the exception of one minor casuality, losses were avoided by hastily intrenching in front of the wood; the transportation, as well as the artillery south and west of Bialuty, suffered negligible damage and but few casualties. In the interim the infantry had pushed forward as far as the line of blockhouses. Corps had attached the tank regiment of our division to the division on our left. This regiment attacked in the area south of Kuklin as far as the tank barriers.

The division received orders to attack in the afternoon, following the artillery preparation. The reconnaissance detachment, having been ordered to provide security for covering the gap between our division and the one on the right, sent out a combat group with instructions to proceed in the direction of Pikielko. Upon reaching Szcepka this group suddenly came under heavy hostile fire, which it returned with some degree of success. However, its progress was interrupted when it reached the line of blockhouses. The infantry likewise was able to make but little progress during the course of the afternoon. The combat group was withdrawn to some extent during the night which, with the exception of friendly harassing artillery fire, passed rather quietly. Some Poles, taking advantage of the darkness, deserted to the German lines.

Other than the exchange of artillery fire, 2 September was uneventful. Twice Polish planes flew over the front and were fired upon by our antiaircraft guns. One was brought down at Neidenburg, the other turned and flew back behind the hostile lines. During the afternoon we were ordered by division to break contact with the enemy at dusk. The division was to be shifted to the east, where the adjoining Corps had been able to advance with some degree of success. The relief was successfully carried out by parts of the two adjoining divisions and the march was resumed on the Bialuty—Wetzhausen—Neidenburg highway. Moving via Kaltenborn—Willenberg, the division reached Rodefeld at midnight (Sketch No. 3).

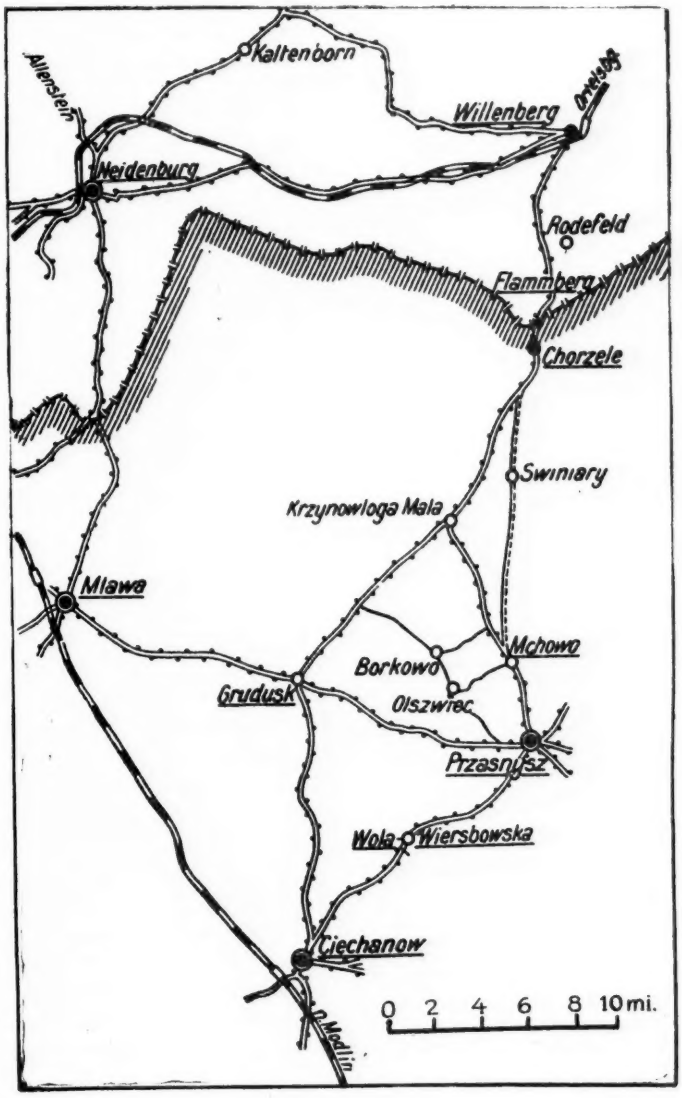
Following instructions from G-3 of the division, three patrols were organized at 7:00 AM. Meanwhile the situation at Chorzele had developed as follows: A friendly division, after penetrating strong hostile resistance, was advancing on Grudusk; another division, pushing forward in the area south of Chorzele, was moving toward the southwest; and a cavalry brigade, coming from the northeast, had arrived within twelve miles of Przasnysz. Nothing was known concerning the disposition of the hostile forces. While the author was engaged in carrying out the details involved in reconnoitering the highway, with the view of facilitating the advance of the mechanized division on Przasnysz, the patrols were employed as follows:

Patrol No. 1 to reconnoiter the stretch from Chorzele to Grudusk.

Patrol No. 2: Chorzele—Krzynowloga Mala—intersection northwest of Mchowo—Borkowo.

Patrol No. 3: Chorzele—Swiniary—Mchowo—Olszewiec.

Having reached the ouskirts south of Chorzele the reconnaissance detachment commander came upon the corps



SKETCH NO. 3

staff, where G-3 gave him a brief summary of the situation. At 7:30 AM corps had taken up the pursuit along the entire front and expected to occupy Przasnysz shortly. Further reconnaissance revealed that the Poles had blown up the bridge at Krzynowloga Mala, but that a detour had been established. On the road to Mchowo we passed the mutilated bodies of 24 Polish soldiers and their horses—all that was left of a Polish antitank platoon which apparently had touched off some Polish mines concealed in the road. About 10:00 AM German troops passed the point where the road is intersected by the Krzynowloga Mala—Mchowo road; still no report had come in on Mchowo. Patrol No. 3 had experienced considerable difficulty on the sandy road and did not reach Mchowo until some time later. This road was indicated on the Polish map as improved.

Meanwhile the division formed three pursuit groups, each group composed of infantry, artillery and tanks, the reconnaissance detachment being attached to the forward group. For the advance on Mchowo and Przasnysz the reconnaissance detachment was reinforced by a platoon each of engineers and infantry heavy weapons. The first mission was to occupy Mchowo and reconnoiter to the south thereof.

Patrol No. 1 reported from Grudusk that it had entered the town and put a Polish tank out of action. Immediately taking advantage of the advance of one of our scout cars, the infantry occupied Grudusk and the patrol was recalled.

At 1:45 PM the reconnaissance detachment continued its advance until it reached the outskirts of Przasnysz, where it encountered a cavalry patrol moving up from the east. After both sides had gone into position and observed each other for a time, we finally recognized these horsemen as a German patrol from the cavalry brigade. Although our vehicles were of typically German design, the camouflaged helmets worn by our men made identification difficult. The 1st Company of the reconnaissance detachment then proceeded to Przasnysz and reported the town unoccupied by enemy troops. About 4:00 PM the detachment and the cavalry brigade entered the town and found that the greater portion of the civilian population had also fled. The Poles had blown up the bridge on the road to Chorzele, but the one on the road to the east was still intact. Traffic, however, was blocked considerably by the cavalry watering their horses in the town, an operation which delayed the forward elements of the mechanized division in reaching the southern exit. The presence of Polish forces, presumably cavalry, temporarily held up the advance of our patrols on the road to Ciechanow.

Reinforced by infantry heavy weapons, a rifle company attacked the wood about a mile southwest of Przasnysz; finally a battery of artillery arrived and opened fire, forcing the enemy to retire. Polish cavalry retreating in the area south of Przasnysz was also brought under artillery fire.

From division we learned of their intention to march on Ciechanow. The cavalry brigade had orders to continue advancing westward.

About 6:00 PM the detachment sent out a patrol followed by the 1st Company, reinforced by an antitank platoon, in the direction of Ciechanow. Although repeatedly fired upon from the northwest, the company continued to drive ahead and by dusk it had reached Ciechanow. Polish troops filled the streets and the enemy occupied the barracks at the edge of the town. Despite this the company dispatched several patrols into the town, where they created a panic with hand grenades and submachine guns. When the barracks were subjected to the fire of antitank guns and light mortars, the Poles cleared out promptly. By that time it was dark, and so the company took up a defensive position at the northeastern exit of Ciechanow.

Meanwhile the main body of the pursuit group had halted at Wola Wierbowska on account of darkness. Nobody knew how far the 1st Company had been able to advance. While local security was being established at Wola Wierbowska, Polish artillery opened fire from the northwest. The road became blocked when a direct hit struck an ammunition truck, setting it afire. During a fight with Polish stragglers concealed in houses on both sides of the street, a number of houses went up in flames. At this moment the 1st Company radioed that it had reached Ciechanow. But due to the conditions of traffic in the rear and the rifle companies still being engaged at Wola Wiersbowska, we were unable to send reinforcements forward.

At 11:00 PM the reconnaissance detachment received orders to proceed to Ciechanow with everything available. Driving without lights we reached the northeastern limits of the town at midnight. A part of the 2d Company secured the road to Grudusk; the remainder took up a position in depth along the route of advance.

During the night the Poles attacked from Ciechanow and were repulsed by the 1st Company. About 4:00 AM a Polish column moving from Grudusk was engaged by the security detachment from the 2d Company and an antitank gun and annihilated. Several machine guns, two heavy infantry mortars, two antitank guns and a large number of horse-drawn vehicles were captured, and fifty prisoners were taken. There was no record of our own casualties.

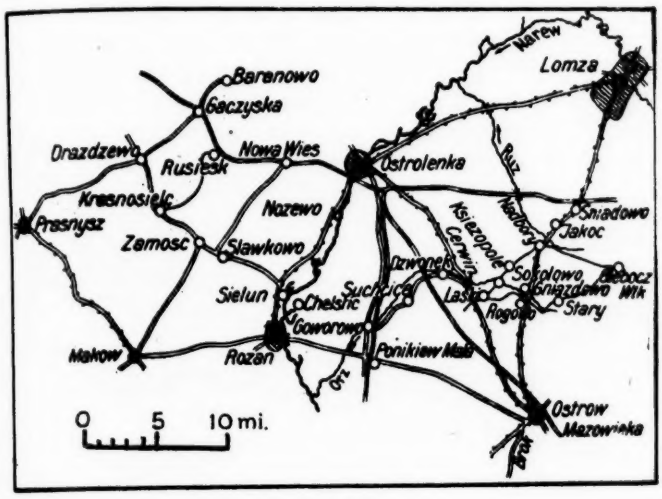
During the morning 3 September, the reconnaissance detachment completed the occupation of Ciechanow without encountering further resistance. Several patrols were sent out to the northwest, west and south. Later they brought in a number of prisoners and a Polish scout car, and reported that large Polish forces were withdrawing to the west. Suddenly a hostile armored train approached Ciechanow from the south and captured a German sentry. When it was fired on by a German antitank gun, it withdrew. To prevent further surprises of this nature, the reconnaissance detachment from then on blew up every stretch of railroad track.

Shortly after noon the pursuit group received orders to proceed eastward via Przasnysz. Meanwhile the Poles had vacated Mlawa and retired toward the southwest. The German East Prussian Army was regrouped for an attack against the Narew. Having recalled all patrols by radio and loaded all booty of value, the reconnaissance detachment departed at 6:00 PM for Przasnysz, where it spent the night.

ROZAN—NADBORY—BROK

The reconnaissance detachment was the last unit to leave Ciechanow, whence it followed the division to Drazdzewo. On the march, having received orders to reconnoiter the flanks of the division, it dispatched the following reconnaissance patrols:

Patrol No. 1: via Zamosc to Makow.
Patrol No. 2: via Sielun to Nozewo.
Patrol No. 3: via Zamosc to Nowa Wies.
Patrol No. 4: via Krasnosielc to Ruciesk.
Patrol No. 5: via Gaczyska to Baranowo.



SKETCH NO. 4

Patrol No. 1 received instructions to gain contact with friendly troops believed to be located in Makow, to reconnoiter the condition of the roads, and then to rejoin the detachment. The other patrols were ordered to remain at their objectives until further orders.

The rest of the reconnaissance detachment moved from Drazdzewo to Zamosc, arriving at Krasnosielc about 11:00 AM, 3 September, where a destroyed bridge had held up the advance of the division the evening before. Meanwhile the engineers had built an emergency bridge, the approaches to which led across marshy meadows; this bridge presented further difficulty by restricting traffic to one direction. Upon reaching Zamosc the reconnaissance detachment received orders to cross the Narew at Sielun, to drive ahead along the east bank of the river and prevent the Poles from destroying the bridge at Rozan. At the same time an attack was to strike the weak Polish forces at Rozan (Sketch No. 4).

At 1:00 PM our advance party reached Sielun, where it found the opposite bank of the Narew unoccupied by the enemy. Heavy firing could be heard in the direction of Rozan. The German attack there met with stubborn resistance, and it was not until two days later that Rozan fell into our hands.

At Sielun the 2d Motorcycle Company prepared for the river crossing and the heavy machine-gun platoon of the 1st Motorcycle Company was designated to cover the crossing. Engineers arrived shortly with collapsible rubber boats and experienced no difficulty in unloading their equipment at the river bank. The 1st Company (less the five patrols) was sent to reinforce Patrol No. 2, when the latter reported the presence of hostile forces at Ostrolenka. Meanwhile the reconnaissance had developed as follows:

Patrol No. 1, on the road to Makow, met a patrol from a friendly infantry division. Halfway to Makow it came upon a Polish tank, opened fire and forced it to withdraw. German troops were reported occupying Makow.

At Nozewo Patrol No. 2 drew some machine-gun fire, as well as mortar and machine-gun fire from the east bank of the Narew. In order to cover the flank of the division against Ostrolenka, the remainder of the 1st Company was sent to Nozewo as reinforcement for Patrol No. 2. Later these elements were relieved by a battalion of infantry.

Patrol No. 3 blew up the railroad tracks at Nowa Wies. When a Polish armored locomotive rolled up from the direction of Ostrolenka, this patrol opened fire with its antitank gun and forced the locomotive to withdraw.

Patrol No. 4 reached Ruciesk without encountering opposition and blew up the railroad tracks there.

Patrol No. 5 found itself opposed by hostile cavalry patrols at Baranowo. In the evening this cavalry and a mob of armed civilians surrounded the patrol and attacked it. However, by employing its light mortar and throwing hand grenades, the German patrol managed to withdraw.

At 1:45 PM the 2d Company (less motorcycles) crossed the Narew and made some progress. After it had covered about a mile, the company came upon a long line of Polish positions at, and south of, Chelstic. As the Polish population was participating in the fighting, the Germans set the town afire. At Sielun Polish cavalry was observed approaching Chelstic from the northeast. Our own artillery in position west of Sielun was notified in time to open fire on this cavalry. Disappointed at the size of the hostile resistance at Rozan, division ordered the 2d Company to withdraw to the river at dusk and to cross the west bank under cover of darkness.

The reconnaissance detachment was now placed in reserve at Slawkowo. The difficulty of driving at night without lights was aggravated by the necessity of being required to wear gas masks when a warning was issued at Sielun. Still, the five-mile trip, requiring a full hour, was completed without any noteworthy mishap.

At Slawkowo, following a two days' rest, the detachment, on 6 September, experienced its first and only bombing raid by a Polish plane. The bombs missed the town by several hundred yards.

After the capture of Rozan the division was divided into several combat groups, with orders to advance on the Polish forces at Ostrolenka and Lomza from the south. Other forces were directed against the Bug. Although the bridge at Rozan was speedily repaired, it was only wide enough to accomodate traffic in one direction.

The first group of the division crossed to the east bank and continued the march in a northeasterly direction. The reconnaissance detachment was attached to Group "K," the second group that crossed the bridge. At 3:00 PM we motored out of Slawkowo and at Sielun were joined by the main body of the second group. The movement continued via Ponikiew Mala—Goworowo. The road from Rozan to Ponikiew Mala was littered with the remains of a Polish column that had been annihilated in a German air raid. The 1st Motorcycle Company took over the security of Goworowo; the remainder of the reconnaissance detachment continued in the direction of Suchcice. Shortly before dark a German reconnaissance plane dropped a message stating that strong hostile cavalry was still occupying the woods northeast of Rozan. Immediate reconnaissance in that direction, however, was prevented by the Orz, a stream running parallel

to the road. Polish stragglers roamed about the country. The population was in arms. During the disturbance a section of Goworowo and several farm buildings went up in flames.

At Suchcice we came upon the reconnaissance detachment of another division; it had marched over the same route and was facing a weak hostile force. Here we slept for a few hours in a ditch beside the road.

The following day the other reconnaissance detachment moved on via Dzwonek. Our detachment sent a motorcycle patrol across the railroad bridge to patrol a few miles to the north, where they failed to locate any enemy present. In the meantime the 1st Company had returned, and at noon the reconnaissance detachment was attached to Group "St.," which was marching on Lomza via Laski—Sokolowo. A major delay was encountered in crossing the Orz at Sokolowo, where the Poles had destroyed the bridge across the stream. About 5:00 PM we reached Nadbory, where we made a brief halt in the wood southwest of the town.

About this time Group "St." clashed with some Polish cavalry in the area north of Nadbory. The concentrated fire of four German batteries forced the cavalry to withdraw to the northeast. The rifle companies of the combat group occupied the high ground north of the Ruz without encountering any resistance. During the night division issued orders to be ready to move to Ostrow Mazowiecka on 10 September. Meanwhile a German division had crossed the Bug at Brok and was gaining ground to the south. Our division was to be shifted to that locality.

During the previous evening the reconnaissance detachment, on orders of the Group "St." had placed its 1st Motorcycle Company along the Ostrow Mazowiecka—Lomza road to cover the right flank. A platoon of the 2d Company was stationed as a security detachment at Ciagaczki. The rest of the reconnaissance detachment was placed in reserve in the area southwest of Nadbory. The left flank of the combat group was secured by another motorcycle company at Piski. South and southwest of Nadbory the batteries were in position. A tank company (most of its tanks in need of repair and lacking adequate ammunition) stood near the group command post north of Nadbory.

The hour of departure having been set by division at 5:30 AM, the rifle companies left their positions about 4:00 AM and marched to their trucks; the artillery limbered up a short time later. The last of the riflemen had scarcely crossed the stream, when machine-gun and rifle fire broke loose from the north and strong Polish forces could be seen advancing along the Lomza—Ostrow Mazowiecka highway and through the area west of the road. Soon Polish artillery joined the fire, its shells falling first on the road bridge and then on Nadbory itself. Our 1st Company, deployed along the road, was threatened in the rear and had to be withdrawn beyond the stream.

Meanwhile the combat group with its artillery and one-half the infantry had started marching off in the direction of Ostrow Mazowiecka, leaving only two companies of infantry and a half-battery of artillery available to go into position at Nadbory. Running out of ammunition, the tanks had to go out of action. Several staff cars of the combat group, including a radio car, had to be abandoned.

The Polish forces, estimated as one cavalry brigade, succeeded in crossing the stream and forcing the Germans to abandon Nadbory. While the reconnaissance detachment covered the withdrawal, the other forces still available were withdrawn behind the Orz sector to the southwest. Fortunately, the ford at Sokolowo had been improved and no delays occurred.

While the 2d Company took up a defensive position, the 1st Company fought a delaying action and fell back gradually. The latter was then ordered to move immediately to Rogowo via Laski and there to block the hostile advance on the main road. The 2d Company received heavy enfilade fire from the east, while the Poles launched a frontal attack supported by artillery, forcing the company to retire to Ksiezopole. After the rifle units of the combat group had taken up a position behind the Orz, the 2d Company was moved back to Laski, broken up into several groups, and placed into the line again in the area between Gniazdowo Sokolowo.

During this withdrawal, the antitank platoon remained with the rear guard and poured their armor-piercing shells into the ranks of the Polish cavalry and infantry. Meanwhile the platoon of scout cars made repeated forays along the road and were the last elements to break contact with the enemy. The reconnaissance detachment lost only one dead; the missing reported to their companies during the course of the afternoon.

The 1st Company, having arrived at Rogowo, repulsed the hostile patrols operating in that vicinity. Scout cars operating toward the east beyond Stary revealed the movement of strong Polish forces from Nadbory in the direction of Glebocz. The enemy was withdrawing.

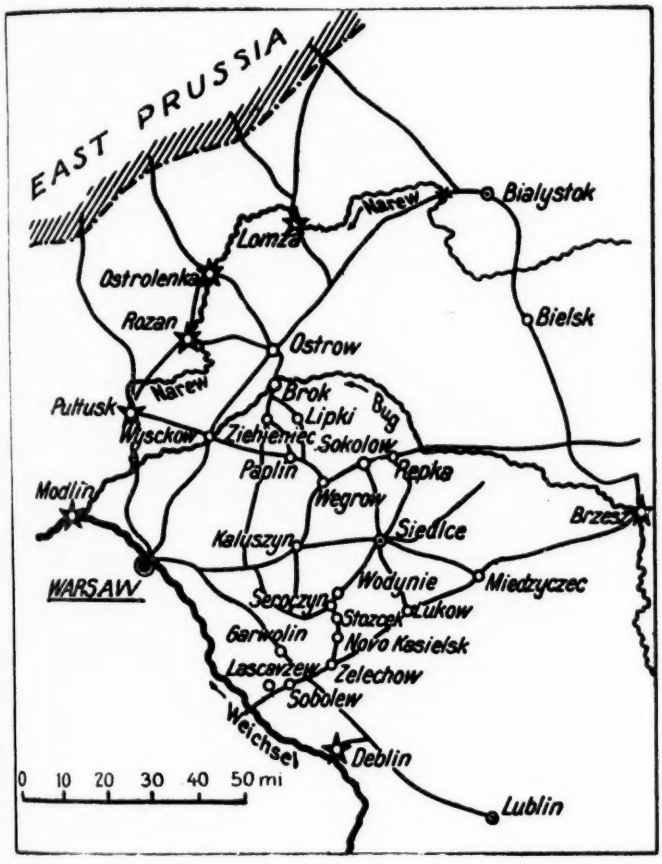
While the reconnaissance detachment continued to furnish security along the Orz until 6:00 PM, the remainder of the combat group marched off to the south. When the former departed for Ostrow Mazowiecka, it ran into lively machine-gun and mortar fire shortly before reaching that locality. Friendly infantry had mistaken it for Polish troops. The error was soon rectified, however, and resulted in no loss of life. When we reached the town we found it jammed with troops. Civilians, running about trying to get into their homes before dark, added to the confusion.

After we had parked on a side street and eaten a meal, we resumed the march in complete darkness, heading for Brok. The endless trains of an infantry division were moving in the same direction. Shortly before reaching Brok, traffic became so jammed that all movement stopped. The reconnaissance detachment spent the remainder of the night sleeping in a ditch beside the road.

SIEDLCE—SEROCZYN—LASCARZEW

On 11 September 1939 the situation northeast of Warsaw was as follows: German forces were advancing from the north against Modlin and Warsaw. A bridgehead, nine miles deep, had been established south of Brok. On its southern front stood the advanced elements of the East Prussian Mechanized Division. Other German forces were marching north of the Bug toward the east, and motorized units were being employed against Bialystock from the north. While one reconnaissance detachment and Group "K" advanced on Wegrow and other parts of the division

struggled through the sand at Lipski, the SS reconnaissance detachment crossed a pontoon bridge at Brok and continued to advance toward Ziehieniec. The progress along the highway was continuously interrupted by traffic congestion, the shattered remains of Polish columns and the resistance offered by the hostile artillery. At 2:00 PM we reached Wegrow, through which the leading elements of the division had already passed on their way to Kaluszyn (Sketch No. 5).



SKETCH No. 5

At 3:30 PM we were ordered to Sokolow, where a number of prisoners were taken. When at 6:00 PM we left for Siedlce, we had to leave a patrol at Sokolow to guard the place and the prisoners. Siedlce had been almost entirely destroyed by fire. German fliers had completely destroyed the railway and traffic was impossible. Every stretch was blocked by trains, many of which were loaded with a vast amount of booty. The main highways out of Siedlce leading toward the south, southeast and east were reconnoitered by motorcycle patrols. Scout cars were sent toward the northeast and west. The rest of the reconnaissance detachment provided security toward the east and northeast.

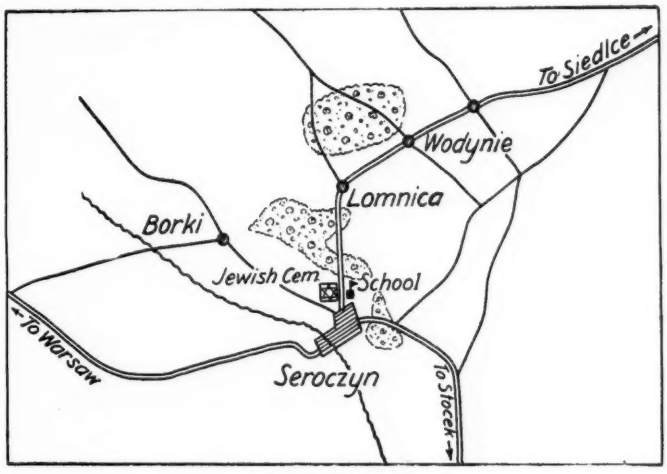
On 12 September the main body of the division advanced via Seroczyn—Stozcek toward the Warsaw—Lublin highway, which was reached on the 13th by the advance guard.

The roads leading toward the southeast, east and northeast were found by the patrols to be interrupted by road blocks and destroyed bridges. No organized hostile forces were found west of Siedlce, but everywhere our patrols found large numbers of stragglers. One patrol of twelve motorcyclists brought in 300 stragglers.

During the late afternoon, Group "K" arrived at Siedlce and continued on toward the southwest. In the evening, upon the arrival of a friendly division, the reconnaissance detachment followed its own division.

The Headquarters Company and the 1st Company spent the night in Seroczyn, the 2d Company in Lomnica. Group "K" occupied both places and the road between. At Seroczyn weak Polish forces had been driven toward the northwest. The Division Engineer Battalion, reinforced by an antitank company, provided protection toward the west. The 1st Company occupied the center of the town, while the Headquarters Company took over the school. (Sketch No. 6.)

About 4:00 AM on the 13th firing began. The Poles were attacking the school, assisted by two heavy machine guns in position about 150 yards from the building. This first attack was repulsed, the battery and a rifle company from Group "K" taking part in the defense. The Poles broke through the security detachments, but the engineers succeeded in holding the main part of the position. The 1st Motorcycle Company took up a position on the eastern edge of the town in preparation for a counterattack. After the hostile attack had been repulsed, the battery and the rifle company of Group "K" resumed their march toward the south.



SKETCH No. 6

The Poles soon began to attack again and succeeded in penetrating the western part of the town and occupying the Jewish cemetery opposite the school. Some penetrated the wood north of Seroczyn and brought the school under flanking fire. Then came a bombardment by heavy infantry mortars and 37-mm guns. Our casualties began to increase and we were forced to abandon the windows and carry on the defense in the garden and from behind the hedges. As our fire improved the Polish advance stopped. but still the school was surrounded on three sides. At this point the 1st Company and the engineers began their counterattack. The Poles north of the school were thrown back across the road and those in the Jewish cemetery suffered heavily when our mortars came into action. When the western part of the town was set on fire by tracer ammuni-

tion, the Poles were forced to abandon it. After a time troops on motorcycles and engineers reached the former positions west of the town and the Poles were mopped up by machine-gun fire as they retreated along the road toward Borki.

The Poles now proceeded to bombard the town with artillery. At Lomnica, which was also suffering from the effects of hostile fire, the enemy was met with such heavy machine-gun fire that he failed to attack. The scout cars established liaison with the 2d Company and, as they proceeded along the highway toward Siedlce they came upon the enemy (estimated one infantry regiment) with its heavy weapons in position on both sides of the road. The Poles had broken through at Wodynie and Olesnica, an operation in which the rear echelon of the division suffered heavy casualties. The division was now isolated. On the 14th it received gasoline by airplane and by the 15th it had restored contact with Siedlce.

Meanwhile a tank company arrived in Seroczyn from the southeast and mopped up the woods in the vicinity of Lomnica. In the afternoon it moved against Borki and annihilated the Poles located in the potato fields, but lost two tanks just outside of Borki.

The German losses amounted to about 40 dead and 120 wounded, of which 11 and 40 respectively belonged to the reconnaissance detachment. The Poles lost about 300 killed. Neither side took any prisoners. Our detachment captured 12 machine guns and several light mortars.

During the night the reconnaissance detachment and the engineer battalion provided for an all-round defense of Seroczyn. On the following day contact was established with parts of an East Prussian infantry division northeast of Seroczyn, but this was soon cut by fresh Polish forces from Siedlce. During the evening of the 14th the reconnaissance detachment was relieved by an infantry battalion, but remained for the night in Seroczyn.

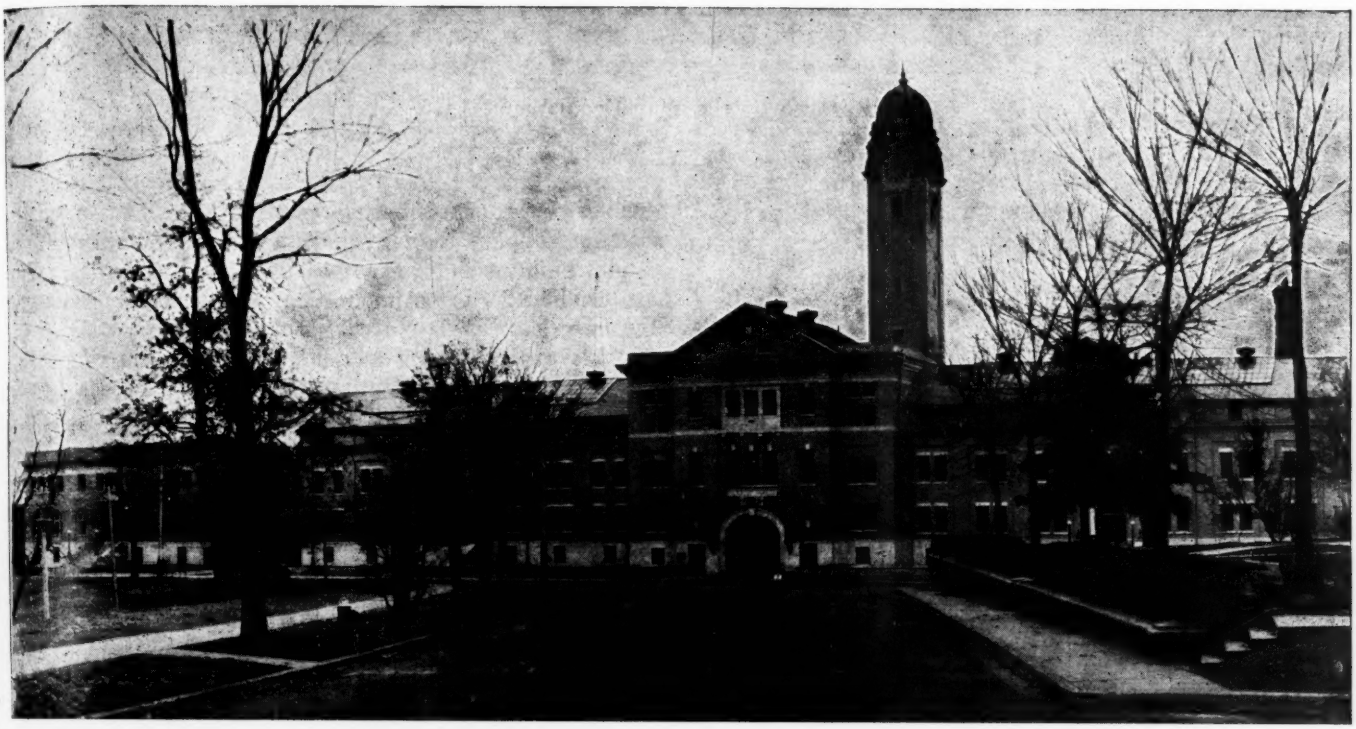
On the 15th the 2d Company and the scout car platoon were sent to Siedlce for supplies. On the same date about 10,000 Poles and 30 pieces of artillery arrived in this locality. At 5:00 AM the rest of the detachment moved to Nova Kasielsk via Stocek, where security had been provided toward the east and west. At noon the 2d Company arrived with the division baggage and shortly thereafter we were ordered to Sobolew with Group "L." Meanwhile Group "St." had blocked the Warsaw—Lublin highway; Group "K" was to move to the Vistula southwest of Lascarzew, while Group "L" was to close the gap between the two groups.

When we arrived at Sobolow at 10:00 PM we found that Group "K" was still there. After passing the night in a small wood, we set out on the following morning sending motorcycle patrols and scout cars to the north and the south, while Group "K" advanced in the direction of the Vistula. Stragglers from the Polish Army were everywhere. Slight resistance was encountered here and there, but eventually this fell away and the number of prisoners taken began to increase.

During the evening of 16 September the division was ordered to move into the area north of Modlin on the 17th, moving via Siedlce—Rozan. After a very strenuous march of almost 200 miles, the reconnaissance detachment arrived at Pultusk during the night where, in spite of the rain, our dead-tired troops slept in the open. The division was being reassembled for the siege of Modlin. The first motorized war of movement in the history of the world had reached its conclusion.

* * * * * * *

Flanking action rather than frontal action may be taken as normal with the streamlined division. Regardless of the size of the unit involved, the ideal is to contain the enemy in front with the smallest force practicable and to envelop one or both flanks. Envelopments that would have been extremely dangerous before the employment of motors for the movement of troops are entirely safe today on account of the short time required for reinforcements to come up. Time and not distance is the determining factor today.—Major General Walter C. Short, Commanding General IV Corps.



Academic Notes

Current School Material, Which Affects Instructional Procedure or Tactical Doctrines

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Notes on Field Service Regulations
Volume II (Administration) (FM 100-10)

As Approved by the War Department, 1940.

Foreword

Field Service Regulations, Vol. II, Administration (FM 100-10), will follow the system prescribed in FSR, 1923, and in *Supply, Evacuation and Logistics*, C&GSS, 1937, except as noted below. These notes are furnished at this time to bring to the early attention of all concerned the principal changes in the system currently taught which are to be incorporated in the completed draft of FM 100-10.

I Definitions

1. *Administration.*—When unqualified, the term *administration* includes all phases of military operations not involved in the terms *tactics* and *strategy*. It comprises: supply, evacuation, sanitation, construction, maintenance, replacements, transportation, traffic control, salvage, graves registration, burials, computations pertaining to movements, personnel management, quartering, military government, martial law, censorship, and other allied subjects.

2. *Classes of Supply.*

Class I: Same as in FSR, 1923, except that motor fuel and oil is omitted.
Class II: Same as former Classes II and III.
Class III: Motor fuels and lubricants (air and ground).
Class IV: Same as former Class IV, except ammunition.
Class V: Ammunition.

3. *Depot.*—An organized locality for the reception, classification, storage, issue or salvage of supplies, or for the reception, classification and forwarding of replacements. The designation of a depot is that of the unit establishing it, followed by the kind of supplies stocked. For example: "First Army Ammunition Depot No. 1"; "Communications Zone General Depot No. 3"; "First Army Replacement Depot."

4. *Railhead.*—(Truck head, Navigation head.)—A point where loads are transferred from the designated type of transportation. When unqualified, the term has no connection with a particular class of supplies as in former regulations.

5. *Dump.*—A temporary stockage of supplies within the area of corps, divisions or smaller units. When supplies are issued from dumps, the latter become distributing points. Dumps are designated by the identity of the unit establishing them and by the class of supplies therein; such as, "1st Infantry Ammunition Dump," or "1st Division Class I Supply Dump."

6. *Distributing Point.*—A place other than depots and railheads where supplies are issued to regiments and smaller units. Distributing points are designated by the class of supplies therein; and by the identity of the unit establishing them; for example, "Class I Distributing Point, 1st Division," or "Ammunition Distributing Point, 1st Infantry."

7. *Supply Point.*—A generic term used to include depots, railheads, distributing points and air bases.

8. *Refilling Point.*—This term is not to be used.

9. *Control Point.*—An agency established by a unit at a convenient point on the route of its trains where information and instructions are given and received in order to facilitate and regulate supply.

10. *Clearing Station.*—(Formerly called the division hospital station.)—The division medical installation where sick and wounded are assembled from collecting stations and aid stations, sorted, treated if necessary, and turned over to the Army for further evacuation.

11. *Train.*—The train of a unit is that portion of the unit's transportation with its accompanying personnel which operates under the immediate orders of the unit commander in supply, evacuation, and maintenance. The designation of a train is the same as that of the unit, as *1st Infantry Train.*

Notes: (1) The terms: *service, field* and *combat* trains are not to be used. (2) A train may be subdivided according to the service in which it is engaged; for example, *Ammunition Train, 1st Infantry; Kitchen Train, 1st Battalion, 1st Infantry;* or *Medical Train, 1st Battalion, 1st Field Artillery.* (3) For divisions and larger units the term *train* will seldom be used as it will be found more convenient to refer to the particular service unit concerned. Thus the term *1st Medical Battalion (Regiment)* will be used rather than *1st Division Medical Train.*

12. *Troop Movements.*—A troop movement is: *by marching*, when the foot troops move as such and other units move by their organic transport; *by motor* (rail or water), when the foot troops and all other elements move simultaneously by truck (rail or water); *by shuttling*, when all or a portion of the trucks make successive trips in moving both cargoes and troops.

II Theater of Operations

13. *Motor Transport Service.*—The Motor Transport Service embraces all general cargo and personnel transportation, together with the necessary operating personnel and maintenance facilities—except such elements as are assigned organically to troop units.

14. *Military Railway Service.*—The Military Railway Service is responsible not only for rail transportation of

personnel and supplies but also for maintenance of equipment and maintenance of way and structures.

15. *Regulating Stations.*—*a.* As at present prescribed, regulating officers will operate under the orders of the theater commander as traffic control agents for movements by rail into, within and out of the combat zone and when necessary from the zone of the interior to the theater of operations. However, more stress will be laid in the new regulations upon supplementing rail transportation in an emergency by motor transportation. This will require representatives of the motor transport service as well as the railway transport service on the staff of regulating officers and the preparation of detailed plans for the prompt substitution of motor service when and if rail transportation is disrupted. In such a contingency the regulating officer must also have authority, under the general control of theater headquarters, to control all road traffic between the communications zone and the army service area.

b. Even when the rail lines are functioning normally, less than carload lots of supplies may often be shipped from communications zone depots to army depots by motor rather than by rail transport.

c. The duties of the regulating officer with reference to Class I supply remain as at present prescribed.

16. *GHQ Air Force Supply.*—The methods of supply which have recently been developed by the GHQ Air Force will be incorporated into the new regulations with only the readjustment necessary to fit them into the general scheme.

III The Communications Zone

17. *Transportation.*—As heretofore, the technical control and operation of all rail transportation will be under the commanding general of the communications zone, subject to general supervision by the theater commander and to such traffic instructions as may be issued by the regulating officers. Units of the motor transport service not assigned to the armies will be controlled similarly. In case the theater commander desires to be able to establish promptly a pool of rail or motor transportation for strategic purposes, he will require a specified tonnage of either or both types of transportation to be available in certain areas on call after a stated period of time. In extremely urgent situations he may require the physical pooling of such transportation to be held in readiness.

IV The Army

18. *General.*—The army is the principal administrative unit in the combat zone. It deals with the theater headquarters in matters of allocation of supplies and general administrative policies. It provides in its establishments the requisite administrative support for its divisions and for corps and army troops. It arranges with the regulating officer for the desired flow of supplies and replacements into its establishments and for the prompt evacuation of casualties, prisoners of war and salvage from the army area.

19. *Supply Installations.*—*a. Types.*—Army supply installations will be of two general types, depots and railheads. In the former type supplies are unloaded by army service personnel, sorted and stocked in piles or bins for prompt issue to unit trains. In the latter type the bulk of the supplies is kept loaded on cars, and trains of subordinate units are loaded either directly from the cars or with a minimum of preliminary sorting on the ground. Railheads are particularly well adapted to Class I supplies. In a rapidly moving situation when expenditures are light they can also be adapted to handling ammunition. As compared with depots, railheads permit a relatively small number of trucks to be loaded at one time and sorting of supplies is more difficult.

b. Stockage.—The level of supplies of the several classes to be established and maintained in the army service area will be determined by the army commander based on many considerations, such as: status of credits; length, vulnerability, and capacity of lines of communication; tactical (strategical) lines of action under consideration; and status of supply within subordinate units. The minimum stockage will consist of one day of Class I supply, sufficient motor fuel and lubricants to resupply all vehicles for one day's maximum activity (Class III), and one to two days of fire of ammunition for all units in the army (Class V). Items of essential combat supplies of Classes II and IV usually will be stocked in quantities sufficient to replace expenditures for one or two days of operations.

c. Location.—As the bulk of supplies shipped into army installations usually arrives by rail, the unloading point for depots must be at points on the rail net affording the necessary siding facilities. In the interest of safety against hostile air bombardment, supplies should be dispersed. This may be accomplished either by utilizing many railroad sidings or by unloading railroad cars promptly and dispersing supplies in small groups accessible to roads throughout a large area. The latter method is well adapted to ammunition depots. It not only furnishes protection but also facilitates issue to the troops. If the railroad unloading point for any depot is too far to the rear to support adequately the combat troops, the depot should be advanced from the unloading point far enough to be within reach of the unit trains.

d. Number of army supply points.—(1) *Class I supply.*—Class I railheads will be established in practically every situation. Generally not more than two divisions, or one division and corps troops, should be served from any one railhead.

(2) *Ammunition.*—The number of ammunition supply points established by the army is governed not only by the location of the combat troops but also by the road and railroad net and the type of installation adopted (railhead or depot). It is not necessarily the number of supply points that determines the service which can be given but rather the number of trucks that can be loaded simultaneously in a given area. When the rail net permits, a minimum of two ammunition supply points per corps should be established.

(3) *Gasoline and oil.*—The army quartermaster will establish gasoline and oil supply points at *all* railheads and depots, or at convenient locations, such as civilian gasoline filling stations, on the main supply routes leading thereto. This is to permit motor vehicles sent to the rear for any purpose to be filled up with gasoline and oil on the same trip.

e. Service at army supply points.—Each army supply officer furnishes a commander, staff, and the technically

trained personnel required for the operation of each supply point stocked with supplies for whose procurement and distribution he is responsible. Labor and trucks are detailed from the army pool as may be required. Army service personnel not only stock supply points but also load trucks dispatched for refilling from divisions and from army and corps troops. Also, in the case of Class I supplies they sort the supplies into unit lots prior to loading.

V The Army Corps

20. *Corps not in the Supply Chain.*—The army corps, when part of an army, is not a link in the chain of supply, evacuation and replacements for its divisions, except requisitions for and allocations of ammunition and personnel. Its trains normally carry no reserve supplies for its divisions. Its administrative functions are limited to those incident to the requirements of corps troops. When an army corps is detached from the army for both operations and administration, it becomes in effect a small army with all the administrative functions normally performed by the army. In such a situation it requires a considerable reinforcement in service units.

21. *Allocation of Ammunition.*—The allocation of ammunition and other essential combat supplies to the divisions is so dependent on tactical missions that the corps commander must be in the chain of allocations even though the corps is not an agency in the distribution of ammunition. To control intelligently the allocations of ammunition it is also necessary that reports of expenditure go from the divisions through the corps headquarters to the army.

22. *Replacements.*—For similar reasons the allocation of replacements is determined by the corps commander and strength returns pass through corps headquarters.

23. *Inspections and reports.*—In order to gauge the combat efficiency of his divisions, the corps commander must know the status of supply and evacuation therein. This knowledge will be obtained by such inspections as he may make or order his staff to make and by such reports as he may require from the divisions. In case unsatisfactory conditions are disclosed, the corps commander will issue such instructions as may be necessary to his divisions or will make such representations to army as he may deem essential to correct the condition.

VI The Division

24. *Basis of Supply.*—In a division whose trains are motorized, supply operations for all classes are based on these supplies being hauled either in regimental or in divisional transportation from army supply points to the using troops. Normally, supplies are not transferred to other trucks or placed in dumps from the time they are received from the army supply points until they are delivered to the using troops. Based on consideration of the tactical situation, the reserves carried, the probable expenditure rate, the distances involved, the routes available and the restrictions imposed by higher authority, the division commander determines the degree of responsibility that will be placed on subordinate commanders for effecting resupply with their own transportation. The division commander must insure that the requirements placed on subordinate units for the utilization of their transportation in effecting resupply are not excessive. On the other hand, the transportation of the division quartermaster unit constitutes the division reserve, which is inadequate to meet in full the requirements for resupply of the division during a protracted period.

25. *Pooling.*—While certain trucks are assigned prescribed loads it does not follow that their use is limited to transporting such loads. Except for motor vehicles issued as an aid to the movement of active weapons, such as prime movers or weapons carriers, all of the trucks of a unit should be considered as a pool of transportation to be used as required. By this means, maximum flexibility and capacity is obtained.

26. *Gasoline and Oil.*—*a.* The daily consumption of gasoline and oil in the division varies within wide limits depending upon the distance the division moves, the distance to army supply points, and the quantity of other classes of supplies to be hauled (hence truck-miles of supply transportation required).

(Note: It is obvious that there is no fixed quantity of gasoline and oil which can be specified as a day of consumption for a unit. Hence these items should no longer be included in Class I, but should be transferred either to Class IV or Class III as recommended in par. 2, page 74.)

b. A reserve of gas and oil in containers is carried in each unit. As far as practicable, initial distribution of this reserve will be made to each motor vehicle. This constitutes the entire division reserve. Each vehicle sent to any army supply point replenishes its supply at some convenient gasoline supply point established by army at or en route to the army supply point. Vehicles remaining in the forward areas are resupplied by exchanging empty containers for full ones brought forward from gasoline and oil supply points by regimental or divisional transportation.

27. *Rations.*—*a.* The following rations are prescribed for field service (Cir. 88, W.D., November 7, 1939).

(1) Field Ration A: Corresponds to garrison ration. (Perishable.)
(2) Field Ration B: Same as A, but with nonperishable components.
(3) Field Ration C: Previously cooked balanced ration; 6 cans per individual ration, 3 of meat and vegetables, and 3 of crackers, sugar and coffee.
(4) Field Ration D: Three 4-ounce chocolate bars per individual ration.

b. The A ration will normally be issued daily from army Class I railheads to all divisions and other units not actively engaged with the enemy. In battle, one of the nonperishable rations or combinations thereof will usually be issued daily to the units engaged.

c. The quantity and type of rations to be carried by individuals, and on unit trains as a prescribed load will be announced from time to time by the division or higher commander. Factors influencing this decision are: the probability of combat, distance to army supply points, amount of transportation available, character and condition of the road net, and probable relative urgency of Class I supplies versus other supplies.

d. In combat, regimental (or battalion) S-4s normally will establish a rear echelon where all kitchens will cook their rations. Normally, immediately after dark, trucks will be dispatched with cooked meals to locations from which the food can be carried to the front lines. Within the division the commander prescribes the method of distribution of Class I supplies. He may direct the delivery of supplies to regimental kitchen area by division quartermaster transportation (unit distribution); he may direct the issue of regimental Class I supplies at the railhead and the subsequent movement of these supplies by regimental transportation (railhead distribution); or he may direct that a combination of these methods under either division or regimental control will be employed. These lots will be broken down into kitchen lots by regimental personnel and issued to individual kitchens.

28. *Ammunition supply.*—*a.* Since the prescribed loads of some unit trains do not include sufficient ammunition for a severe engagement, it will often be necessary to stock ammunition in the combat area.

b. The basis of the resupply of ammunition of all types is battery, battalion or regimental dumps which are stocked initially from the ammunition trains as soon as troops arrive in assembly areas or on a position. The ammunition trains then commence hauling between the army supply points and the dumps until the desired supply is accumulated. If the ammunition trains have insufficient capacity to accomplish the desired results, they are reinforced either by other trucks from the unit or by trucks from the quartermaster train.

c. The ideal situation is to have at all times within easy access from machine-gun, mortar, and gun positions an amount of ammunition equal to expenditures to be made from those positions plus the prescribed loads of the unit ammunition vehicles. Part of this ammunition may be dumped at the positions of individual pieces. This will provide the maximum supply with the weapons when they displace, and at the same time does not require the abandonment of ammunition in a rearward movement or the rehandling of ammunition in a forward movement. The practical solution is to approach the ideal as closely as available transportation and the ability to predict expenditures will permit.

d. In the absence of a specific directive of the division or brigade commander the quantity of ammunition to be dumped in regimental areas is the responsibility of the regimental commander based on his estimate of the situation, including such factors as ammunition, allocations, probable time, type, location and duration of combat, distance to ammunition supply points, and transportation available.

e. Under the direction of the commanding general,

(1) The senior artillery officer in each command will recommend the apportionment of artillery ammunition.

(2) G-4 in the division and higher units will recommend the apportionment of infantry ammunition.

(3) The senior air officer in each command will recommend the apportionment of aircraft ammunition.

(4) The ordnance officer carries out the administrative details with respect to ammunition supply in accordance with the above apportionments as approved by the commanding general. This may be accomplished by establishing an ordnance control point or similar agency. Ammunition is normally made available in the form of credits in designated depots. Based upon a consideration of periodic expenditure, status and requirement reports submitted to the Army, as indicated in Paragraphs 20 and 21 above, and of the quantities of ammunition available in Army depots as reported by the Army Ordnance Officer, the Army makes allocations of credits to subordinate units. Corps and divisions likewise make allocations based upon credits allotted them.

29. *Water supply.*—Each kitchen carries as a part of its normal load a limited supply of water for drinking and cooking. Resupply is effected either locally or by sending empty containers in regimental or divisional transportation to division water supply points which are established by the division engineers when approved local supplies are not conveniently accessible to the kitchens. If local resources are insufficient, army engineers will establish water supply points, using either tank trucks or railroad tank cars, if necessary.

30. *Maintenance of Material.*—A limited amount of maintenance personnel, spare parts, and equipment is an organic component of companies, batteries and regiments. To assist the regimental personnel an additional maintenance echelon is provided in the division service troops. Except in the case of ordnance matériel, equipment which can not be repaired promptly by these agencies, and hence would tend to immobilize the division, is turned over to army maintenance establishments, other equipment being issued by the army to replace that which is unserviceable. Necessary repairs on Ordnance matériel will be made if practicable by Corps Ordnance Maintenance Companies.

31. *Evacuation of Men.*—The only change under consideration in the system of evacuation in the division is the substitution of the term "clearing station" for "division hospital station" as the last agency of the division to receive, sort, and treat sick and wounded prior to clearance by the army medical service. If the organic medical unit of the division is insufficient in strength to perform its duties, including care and treatment of casualties at the clearing station to fit the patients for the trip to army evacuation hospitals, reinforcing medical units must be provided from a reserve in the army medical service.

VII The Cavalry Division (Horse and Mechanized)

32. *a.* The cavalry division can frequently be supplied through the same methods used for the infantry division. However, as the cavalry division often operates at a considerable distance from a practicable railhead, it may be necessary for the motor transport service to establish a truck head within reach of organic division transportation.

b. An alternative method is to attach to the division trucks from the motor transport service loaded with essential supplies. These trucks may dump their initial loads, the dumps so established becoming supply points of all classes for division or regiments. The motor transport trucks then haul between the army supply point and the dumps.

c. Ammunition supply is similar to that in the infantry division. Rapidly moving situations indicate the need for reserves of ammunition to be kept on wheels ready for immediate movement.

d. It may be necessary to utilize the air transport to transport essential supplies to certain units when extreme

distance from the base or the presence of hostile troops precludes the use of motor transport.

33. *Gasoline, Oil, Forage and Water.*—If local resources in gasoline, oil, forage and water are not readily available to the regiments the amount of transportation to bring up these supplies from the rear is a large factor in determining the quantity of reinforcing transportation that must be made available both to the regiments and to the division as a whole.

Supply of Forces in Sinai During the World War, 1914-1918*

By Lieutenant Colonel Paul J. Mueller, *Infantry*

This examination of the supply aspects of the campaigns in Egypt and Palestine during the World War, 1914-1918, includes the period from the beginning of the war in 1914 to April, 1917. This was the period preliminary to the defeat of the Turkish Army in Palestine by the British armies commanded by General Allenby.

The forces involved in these operations are comparable, roughly, to those of our reinforced corps. The commanders of the forces were relatively independent. Consequently, the problems of supply and evacuation that confronted them were similar in scope to those that are considered in the course at the Command and General Staff School.

The operations furnish an excellent example of careful planning. They show vividly the close relationship that exists between *strategy and tactics* and *supply and evacuation.* Indeed, here is an illustration of operations well conceived and executed from the standpoint of supply and evacuation.

At the outset let us fix in our minds two important principles pertaining to supply and evacuation. The following are quotations from Field Service Regulations:

1. "The adequacy of the supply and evacuation system is primarily dependent upon the efficient organization, administration, and operation of the available means of transportation."

2. "The first essential of the supply and evacuation system is an adequate communications net of which standard-gauge railroads form the skeleton; the standard-gauge system is supplemented and expanded by roads, waterways, and, under conditions favorable to their employment, narrow-gauge railroads. The several components of the communications net constitute the *lines of communication.*"

In the theater of operations in the Sinai Peninsula were employed all the general types of transportation with which our army is equipped. In addition, full use was made of the existing mode of travel and commerce in the area, exemplifying a fact that we must not lose sight of, that is, that problems of types of transport required cannot be solved without a full knowledge of conditions in the theater of operations. The operations illustrate the effects of geography, topography, climate, weather, and soil, on the choice of lines of communication and on the means of transportation employed.

These campaigns also bring to our attention emphatically an item of supply without which military organizations could not exist for any appreciable period, namely, water. We customarily assume in our theoretical problems that water will be obtained from local resources of the theater, and that this item of supply will take care of itself. In semi-arid or arid regions water really becomes a precious commodity, and transportation for it enters seriously into planning and the conduct of operations. In operations in a desert, the supply of water dominates strategical and tactical conceptions.

The desert has always been a particularly difficult problem for a military commander. It remains so today, even if full use is made of modern engineering and transportation. Napoleon remarked, as a result of experiences in the same desert of Sinai that confronted the British and the Turks: "Of all obstacles which can cover the frontiers of Empires, a desert similar to this is incontestably the greatest."

Let us briefly examine now the geography, the topography, the climate, and the soil, and the lines of communication existing at the outbreak of the war in 1914. Sketches Nos. 1 and 2 include the area with which we will be concerned.

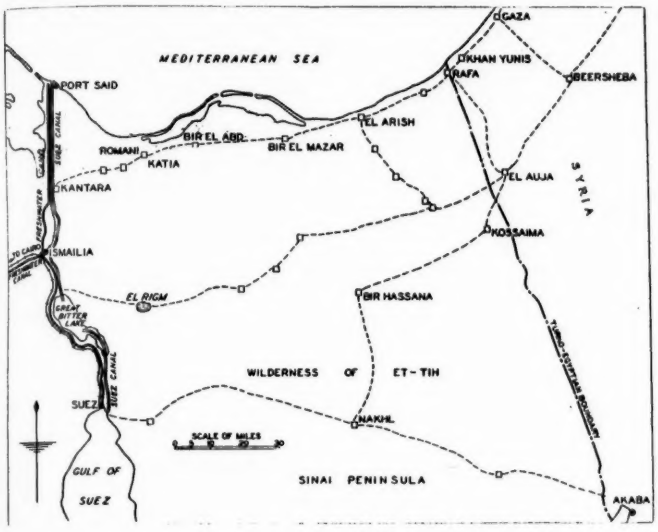
The fertile and habitable part of Egypt consists of the Nile delta and two narrow strips along either side of the river. The remainder is desert. Most of the peninsula of Sinai is desert or waste land. Along the northern coast of the Sinai Peninsula is a narrow plain which is flanked by sand dunes. South of the dune country is a broad plateau. The most prominent feature of the southern zone is the lofty granite mountain range, which rises as high as 10,000 feet. Of the peninsula, as a whole, it may be truly said that no area in the world is more bleak or more desolate. The heat in summer is intense, and in winter bitter winds blow and sandstorms are frequent. There is little vegetation, and there are few signs of human or animal life except along the caravan routes.

The Suez Canal is about 60 miles east of the Nile River. In 1914 the Canal was connected to Egypt proper by a single-track rail line, but there was no road or trail for communication by wheeled vehicles. In fact, other than streets in the cities of Egypt there were no roads, not even paralleling the Canal. For transport outside of the cities the means in use in 1914 were the railroad lines, the Nile and its canals, and pack animals—camels and donkeys.

The towns along the Canal—Suez, Ismailia and Port Said—were, in 1914, entirely dependent upon potable water

*Extracts from a lecture delivered at the Command and General Staff School as part of the course in supply, evacuation, and logistics of the independent corps.

from the Nile River which reached the canal zone through the Freshwater Canal. This canal, approximately 100 miles in length, parallels in general the rail line, and is bifurcated at Ismailia similar to the rail line.

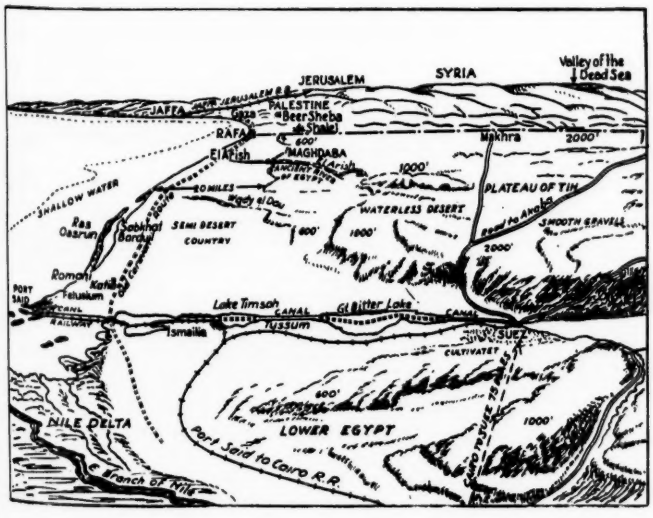


SKETCH NO. 1

LINES OF COMMUNICATION IN NORTHERN PART OF SINAI PENINSULA IN 1914

In some parts of the desert, water is available from wells. Particularly is this true along the northern coast, which has its regular rainfall annually during December, January, and February. During this period, and for some weeks afterwards, water can be found in pools, and all the wells and cisterns are filled. At almost any time of the year, however, water can be obtained by digging on the beach, and although most of it is brackish, camels will not refuse it entirely. It is for this reason that the principal caravan trail across Sinai was developed along the coast. This is the route that armies, including those of Alexander and Napoleon, have taken through the centuries.

Let us now recount the events of 1914 in Egypt.



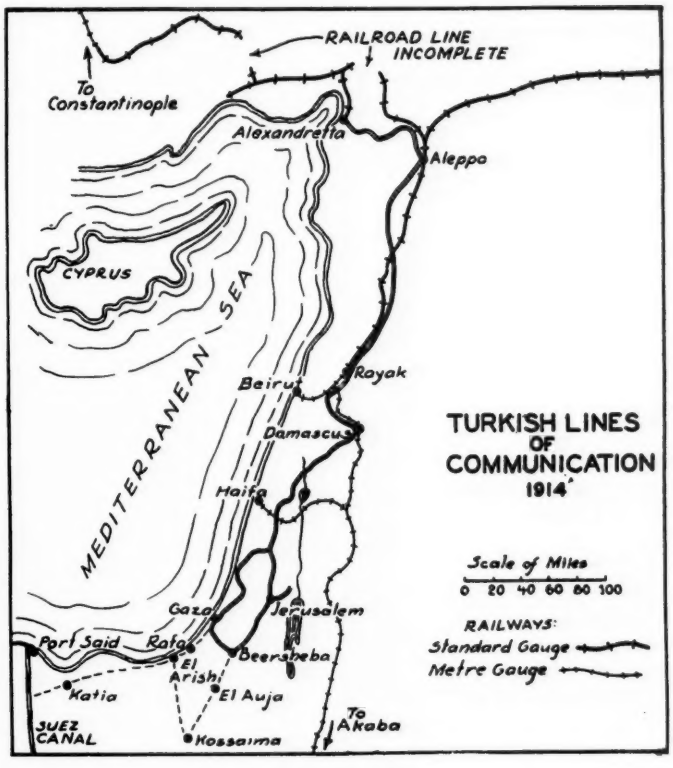
SKETCH NO. 2

BIRD'S-EYE VIEW OF NORTHERN SINAI

Soon after the outbreak of the war between Great Britain and Germany, in August of 1914, the small garrison of British troops in Egypt was ordered to France. In September, troops from India arrived in Egypt, and following the declaration of war on Great Britain by Turkey at the end of October these reinforcements were moved to the line of the Suez Canal. The small units of the Egyptian Army in Sinai were forced to evacuate the advanced posts at El Arish and Nekhl, under pressure of larger Turkish forces which crossed the Turko-Egyptian boundary. By 15 November there were 9,000 Turkish infantry and 3,000 Arab auxiliaries in El Arish, about 95 miles from the Suez Canal.

The British high command had decided to defend the Suez Canal along its banks, thereby taking advantage of the Canal as an obstacle. To assist in the defense, British and French warships were stationed in the Canal. In December, 1914, the defense force consisted of two infantry divisions from India, one cavalry brigade, two field artillery brigades, and an Egyptian pack-gun battery.

The supply set-up for this force began on a rather modest scale. Alexandria, the base port for the peacetime garrison, was continued as the base. A supply depot was established at Zagazig, about 45 miles west of Ismailia, on the railroad. Several railheads were established at which reserve supplies were accumulated. Since there were no roads from the railheads to the advanced troop units and wheeled transport was out of the question in the deep sand, pack animals were used. In January, 1915, the decision was made to organize a Camel Transport Corps, an organization that expanded rapidly, and to which reference will be made later. The need for protection of the installations



SKETCH NO. 3

TURKISH LINES OF COMMUNICATION, 1914

from sabotage was recognized and troop units of cavalry and infantry were detailed for the purpose. These line of communication troops guarded all critical points on the railroad and along the Freshwater Canal.

On the Turkish side of the frontier the line of communication for the army which was being assembled in Southern Palestine was, of necessity, overland from Constantinople. A single-track standard-gauge railroad line extended from Constantinople to Rayak, but there were two incompleted portions of the line that required transshipments across mountain passes under very difficult conditions. At Rayak the supplies were transferred from standard-gauge to narrow-gauge cars and moved to Northern Palestine, about 1,100 miles from Constantinople. From the railhead in Northern Palestine supplies were advanced by road to Beersheba, about 100 miles distant. Beersheba, famous since the dawn of history for its wells, was established as the base for the Turkish army in Palestine shortly after the declaration of war.

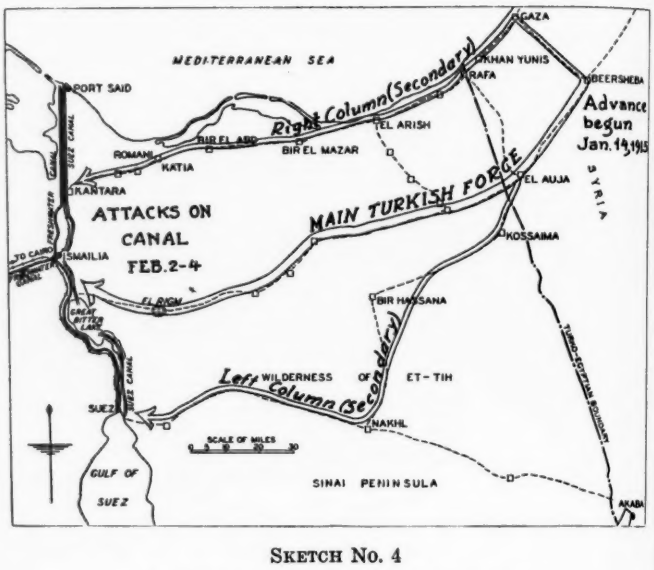
Late in 1914 the mission of seizing the Suez Canal and of conquering Egypt was assigned to Djemal Pasha. Pasha's chief of staff was the German colonel, von Kressenstein. By January, 1915, Djemal's force consisted of three small divisions with a strength of about 25,000. Despite the fact that his force was not well balanced and that the arrangements for supply were inadequate, Djemal decided to initiate the advance without delay so as to take advantage of the then existent favorable situation with respect to the water supply along the route. The factor which governed the decision "when" to march was the state of water supply. The march began on 14 January 1915.

The route for the march, likewise, was selected primarily because of conditions of the water supply. There were a number of wells and pools along a route across the central plateau, in particular there was a large pool at Er Rigm, only 20 miles from the Canal. Another factor considered in the selection of the route was the water supply of the British forces. If Djemal could control the Freshwater Canal at the point of its bifurcation near Ismailia, he would have no trouble in effecting early submission of the British garrison and in taking complete control of the Canal.

Therefore, without regard for the precedent set by invading armies of previous centuries, the main Turkish column advanced along the central plateau of Siani. A small column advanced on Kantara and another on Suez for purposes of deception. The central route furnished better footing on the whole than the coastal route. Nevertheless there were long, sandy stretches to cross that gave no end of trouble for the few wheels in the column.

The matériel of the light artillery, of which there were 9 batteries with the main column, was nearly all carried by pack animals. The heaviest matériel on wheels was the battery of two 150-mm howitzers, which was included in the force to fire on the warships known to be in the Canal. There were also 25 pontons, each 22 feet in length, which were on wheeled frames. In the deep sand, trackage for wheeled vehicles was made by placing brushwood or planking successively from the rear to the front of the vehicles, a very slow process.

All supplies were carried on camels. Even though the barest necessities only were carried, the supply trains were cumbersome. The combat trains of the main force consisted of 1,500 camels. The trains that correspond to our service trains consisted of 6,830 camels, of which 4,600 carried water, 1,280 rations, and 950 ammunition. The overhead of camel drivers, even though they required only simple food in small quantities, made this an uneconomical supply train.



SKETCH NO. 4

ATTACKS ON CANAL 2-4 FEBRUARY, 1915

In the attack on the Canal on 2 to 4 February, 1915, about 7,500 Turks and Arabs participated. The efforts to cross the Canal failed owing to a variety of circumstances, important of which was the tenacity of the Indian troops holding the western canal bank.

Inasmuch as this Turkish expedition was planned on the basis of a sudden and successful attack, the supplies for a sustained effort were not provided. Consequently, when the initial effort failed the Turkish commander had no alternative but to order a retreat to his base. Djemal Pasha, it is reported, was convinced that all Moslems in Egypt would rise in revolt when he approached, and that he would have little serious combat. Once in Egypt the supplies for the army would be ample.

The net result of the miscalculations was that the retrograde movement to Beersheba was as great a failure as the ten days' march to the Canal had been a success. In the advance to the Canal there were no casualties; the line of retreat, however, was marked by the carcasses of men and animals. Only about one-half of the original number of camels arrived back in Beersheba. Fortunately for the Turkish army, the conditions of water supply east of the Canal prevented the British from conducting a vigorous pursuit.

The Turkish commander had a bold conception of this operation, not unlike Napoleon's plan for the advance to Moscow. Each assumed that success would be his, and upon reaching his goal that supplies from local sources would be adequate for his forces. So the Turkish crossing of the Sinai desert in 1915 is included in the list of operations of armies that have been destroyed or badly defeated for the reason that the commander failed to plan adequately for the supply of his troops.

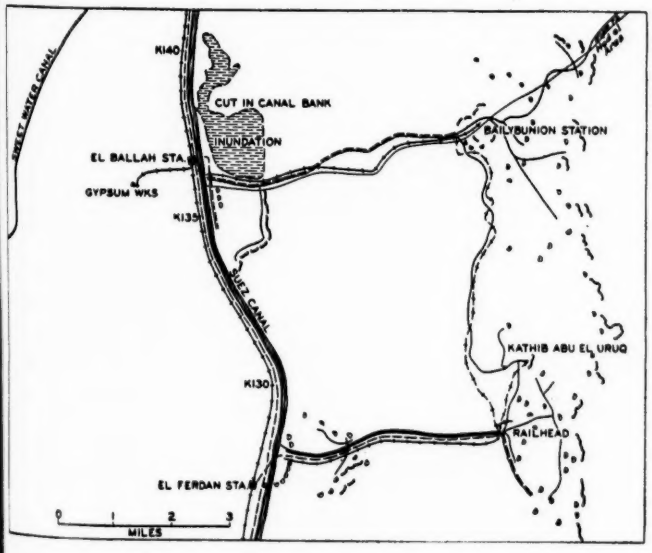
The contrast between the conduct of the Turkish crossing of the Sinai desert and the slow, but dogged, advance of the British across this same desert one year later furnishes an interesting lesson.

The British Army

At about the time of the Turkish attack on the Suez Canal, preparations had been begun in Egypt for establishing a base for the forthcoming operation at the Dardanelles. The Suez Canal was to be superseded as a battle area in the Near East. Elements of the defeated Turkish force in Palestine were sent to reinforce the Dardanelles defenses, which fact being known by the British, permitted the defensive works along the Suez Canal to be held very lightly.

The attention of the British high command in Egypt was now concentrated on administrative problems of great magnitude. The so-called Levant Base was set up at Alexandria, eventually to serve all the forces operating in the Near East, namely, at Gallipoli, Saloniki, Sinai, and in western Egypt, as well as for handling some of the problems for the Mesopotamian theater of operations. The manner of operation of the ports and the other problems incident to this administration are in many respects similar to those of the base and intermediate sections of the S.O.S., or the Communications Zone, of the A.E.F. in France.

When the effort of the Allies at the Dardanelles collapsed, Turkish forces were released for operations in other theaters, and the Suez Canal again began to receive more than passing attention. In December, 1915, the decision was made to develop a stronger defense for the Canal, and to advance the forward lines of a new zone defense from the banks of the Canal to the east. The construction of this line involved many engineering problems.



Sketch No. 5

Section Ballah to Ferdan Showing Organization in Detail

By the middle of January, 1916, the work of construction of the new zone defense in the desert east of the Canal, was well under way. Narrow-gauge railways on the Delta had been picked up and transferred to the Canal Zone, and those formed the basic means of transportation from the Canal to the east. Following the laying of these tracks some metalled roads were built. Concurrent with the construction of lines of communication, pipe lines for water were pushed out into the desert positions.

Construction of the New Defenses for the Suez Canal, 1916

In the construction of this zone defense the British staffs gained valuable experience in meeting the problems of transportation and labor peculiar to the conditions in the theater. This served them well in planning for and in the execution of subsequent operations involving longer lines of communication in the same desert.

At the time that General Maxwell, the commander of the Egyptian Expeditionary Force, had the work on the defenses going well, Sir Archibald J. Murray, erstwhile Chief of the Imperial General Staff, arrived in Egypt. The command of all forces east of a line 5 miles west of the Canal was given General Murray, while General Maxwell retained command of the forces in Egypt proper, where there was under way the tremendous task of untangling the personnel and material dumped in Egypt from the ill-fated Gallipoli venture.

General Murray was well acquainted with the situation in Egypt. While Chief of Staff he had advocated that the line of defense of the Canal to the northeast of Kantara should be extended to include the area in the vicinity of Katia and Romani in order that the water supply in that oasis be denied to an enemy force which might advance toward the Canal by the coastal route. This water supply was only two marches from the Canal, and it was estimated that there was sufficient water there to supply a force of 80,000. General Maxwell had objections to the proposition on the ground that the demands on the labor supply and the supply of materials were such that no new undertaking could be initiated at the time. The result was that the planning for the advance of the defense system to Katia was deferred for the time being.

However, soon after General Murray took command of the Canal defenses, he embodied this idea in a strategical conception for the defense of the Canal. This plan was included in an appreciation of the situation, dated 15 February 1916, prepared in writing for consideration by the War Office. This document, from the standpoint of clarity and thoroughness, is a gem. It is a good illustration of the practical application of a written estimate of the situation.

The tactical plan proposed was about as follows:

1. Change from passive or semi-passive defense of Canal to active defense.

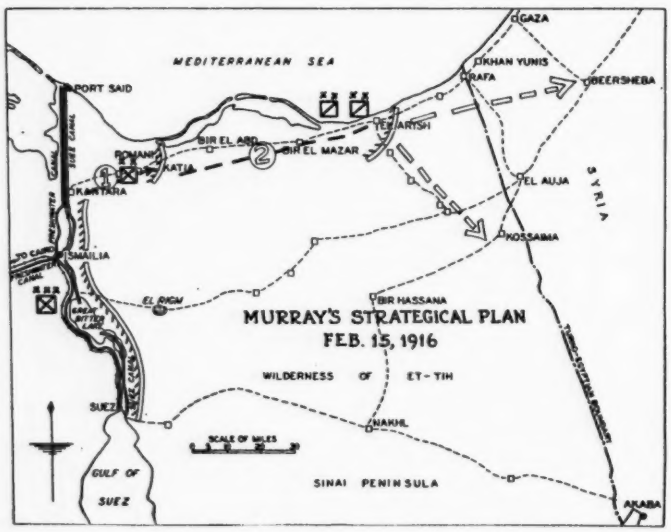
2. Maintain the present forces in Egypt to 15 April. Thereafter, the following should be adequate: one corps of three divisions to hold the Canal defense line, and one division to occupy the Katia area, and three mounted brigades to be available for general purposes, provided all units be brought to war strength.

3. As soon as practicable, to occupy El Arish with two "mobile" divisions and two mounted brigades, so as:

a. To be able to oppose such enemy forces as might attempt to march against Egypt by the northern caravan route.

b. To be able to attack in flank any enemy force attempting to move via Kossaima.

c. To be able to undertake offensive operations against enemy concentrations in the Beersheba region.



SKETCH NO. 6

MURRAY'S STRATEGICAL PLAN, 15 FEBRUARY, 1916

At this time the strategists had given little or no thought to offensive operations in Palestine proper by an advance overland. This plan of General Murray's was an active defense, with the whole conception based on the deduction that the proper defense line for the Canal was the line: El Arish—Kassaima, inasmuch as any Turkish force advancing on the Canal must pass that line.

General Murray, in this appreciation, discusses three lines of action with respect to the lines of communication for the El Arish force. The first, supply overland by camel, was considered impractical inasmuch as insufficient camels could be procured to handle the tonnage. The Navy was contacted regarding the sea route and advised the Army that the conditions of the beach and of the surf were such that that line of communication could not be relied upon.

The third possible solution was a step-by-step advance, regulated on the progress of construction of a road or a railroad. Road construction involved serious difficulties of procurement and transportation of materials. While the construction of a rail line would not be simple, the permanence and capacity of the railroad was considered more advantageous than a metalled road. Furthermore, most of the materials for construction of a rail line and for its operation were available in Egypt.

The defense of this line of communication to the east of the Canal was given careful consideration. Covering forces were to be pushed out ahead of the railhead along the proposed route and critical points on the line were to be protected by detachments. Besides these measures, additional security for the line of communication was obtained by the systematic destruction of wells, cisterns, and pools along the routes in the plateau to the south. By thus further restricting the enemy's water supply on the routes still available to him, the danger of attack from the flank, particularly by large forces, would be reduced.

How were the more difficult problems of moving the supplies from the railhead to the troops and of evacuating the wounded to the railhead to be accomplished? Wheels were practically out of the question in the sand of this desert. A few small animal-drawn carts were used successfully as shown in the accompanying illustration.

The answer was the adoption of the old reliable method of the native, the camel. From December, 1915, to May, 1916, the camel strength of the Egyptian Expeditionary Force expanded from 500 in use in the Canal Zone to about 18,000, and procurement did not keep apace with the requirements. Over 30,000 camels were procured in 1916. The rapidity with which the Camel Transport Corps was developed against a number of odds was considered by all concerned as a remarkable piece of work.

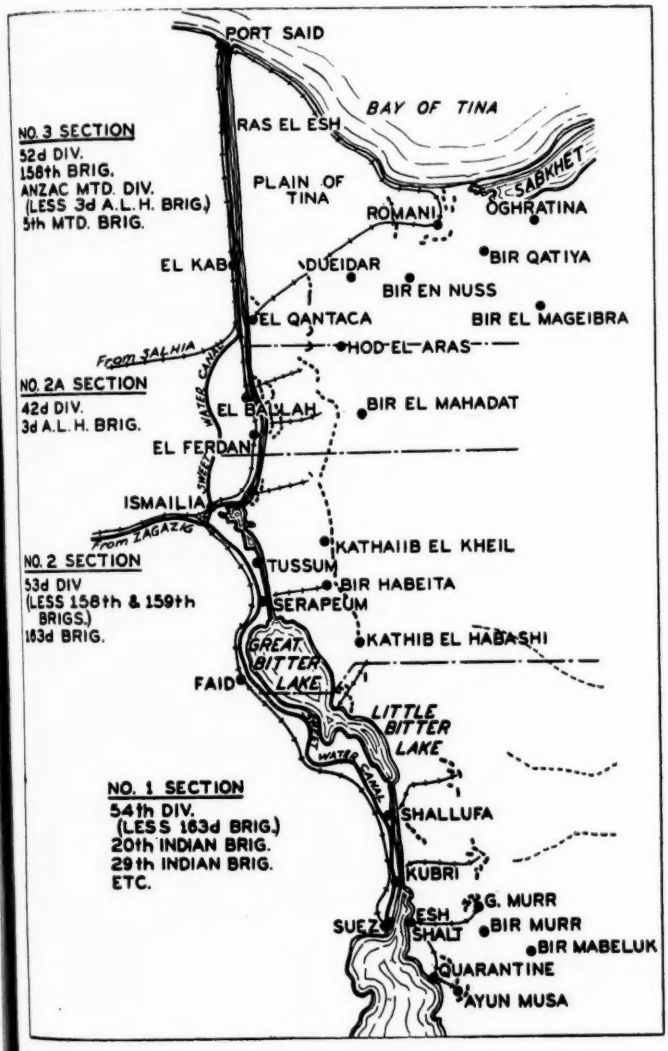
In the general plan of supply and evacuation prepared to support General Murray's strategical plan, the item of supply that required special consideration was water. Based upon previous experience the engineers developed a plan of supply by pipe line. Until the pipe line could be constructed, water supply to railhead was to be by rail. In advance of railhead the sole method of transporting water was by camel. Each camel could carry two 12-gallon containers. Since the daily allowance for the Egyptian camel was about 6 gallons, it is evident that if a camel must be watered from the quantity carried by it, it could operate only four days from a water supply point. The conduct of movements in advance of a water supply point are therefore greatly restricted.

The high ratio of transport requirements for water to those for other supplies were indicated previously. An example of this may be of interest, namely, the supply organization of the detachment from the Australian Light Horse Regiment, which proceeded on 21 March, 1916, to destroy certain wells in the plateau of Sinai. Four hundred forty-three (443) camels were used for the transportation of 3 days' of supply, all classes, of which 15 camels were required for rations for men, 47 forage for horses, 49 forage for camels, 10 for ammunition, 22 for baggage and miscellaneous, and 300 for water. The distance traveled was 144 miles, and the rate exclusive of halts was 3.8 per hour.

So much for the estimate of the situation and the commander's plan. What happened?

On 27 February, the War Office authorized General Murray to proceed with his plan for occupation of the Katia district, but decision relative to the advance to El Arish was deferred.

The completed defense system is shown on the Sketch No. 7. The extension of the rail line east of Kantara to Romani may be seen in the No. 3 or North Section. There is also a connection with Port Said by narrow-gauge railroad. The Kantara-Romani rail line, 16 miles in length, was built between 10 March and 15 May, 1916.



SKETCH No. 7
SUEZ CANAL DEFENSE SYSTEM, MAY, 1916

(NOTE: On this sketch Kantara is spelled El Qantaca and Katia is spelled Bir Qatiya.)

The construction of the railroad was protected by a small force that was posted in the oases of Katia and Oghratina. In the so-called "affair of Katia" on 23 April, 1916, the Turks surprised a part of the advanced detachment, and liquidated 3½ squadrons of Yeomanry and a detail of Engineers.

By 19 May, the railhead was at Romani, and four trains a day were running regularly. This made possible the garrisoning of Romani with infantry on a considerable scale, to construct a strong position, and to maintain there a certain amount of artillery for its defense.

The greater part of the cargo of the railway trains was water. The plan of water supply for the advanced detachment at Katia was based on the construction of pipe lines similar to the lines laid in the defensive zone to the south. The transport of the pipes was dependent, largely, upon the railroad. For this reason, together with the time required for shipment of pipes from overseas, the pipehead was generally in rear of the railhead.

With pipehead behind railhead, water was hauled by rail from pipehead to canvas reservoirs at the railhead. On 4 June, 1916, pipehead reached Romani.

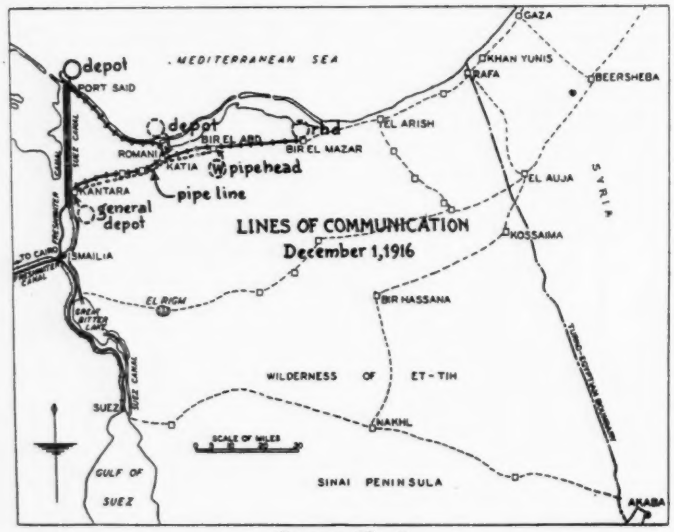
By this time advanced depots of all classes of supplies were set up in Romani, and from the G-4 standpoint everything was moving along in fairly good shape. There were some difficulties, however, particularly because of the water situation during this, the "hot" season. The temperature at Romani during May and June, 1916, did not register below 100° for 56 consecutive days, and for four consecutive days the maximum was 114° to 117° in the shade. In such heat the men and animals demanded more water than usual and fresh water was absolutely necessary. The water from the wells in the oasis, even though slightly saline, could in emergency be used by men and horses in the cooler weather, but it was not acceptable by either at this time of the year.

On 9 July, 1916, the Turks initiated a second raid on the Suez Canal. A force of all arms, consisting of about 18,000 men, advanced along the coastal route, with the Katia—Romani area as the first objective. The advance was carefully planned, with reserves of supplies established along the route of advance. At midnight, 3-4 August, an attack was made on the British defensive position at Romani. The enveloping movement of the Turks had been anticipated by the British and their forces were disposed to meet it. The enveloping force was successfully attacked in flank with the result of a serious defeat for the Turks. They lost about half of their force, of which 4,000 were taken prisoners. The pursuit by the British was none too successful, since the Turks retired to successive positions previously prepared, and besides the pursuing cavalry soon had to return for water.

In the retreat, the Turkish army did not suffer from lack of supplies, as was the case of their retreat in 1915. However, it was necessary for the Turks to destroy some of their supplies in their retreat. In the 1915 attack on the Canal by the Turks we criticized them because provision was not made for a reserve of supplies near the area of battle; in the Romani operation the implication is that more supplies than necessary were placed in the forward dumps. Of course, the ideal solution in stockage of supplies in depots or dumps is to have sufficient of all classes to meet all requirements, but not excessive amounts so that supplies will be lost in event of tactical reverses. Since so many of the factors which govern estimated requirement of supplies are in the realm of conjecture, the ideal will not often be attained. The wise G-4 will usually recommend to his commander that a reasonable factor of safety be authorized in the quantity of battle reserves to be accumulated, because he will prefer to risk the loss of supplies to the risk of loss of the battle or of suffering excessive casualties.

Following the British success at Romani, the War Office definitely approved the second principal step of General Murray's strategical plan, that is, the advance of a part of the defense force to El Arish.

Railway material was available and construction beyond Katia was begun on 10 August. The line was laid at the rate of about 20 miles per month. Egyptian labor was available in adequate quantities, and it was handled systematically by means of labor companies. The labor forces were gradually increased until by 15 December, 1916, 30,000 laborers were engaged on the line of communication.



SKETCH NO. 8

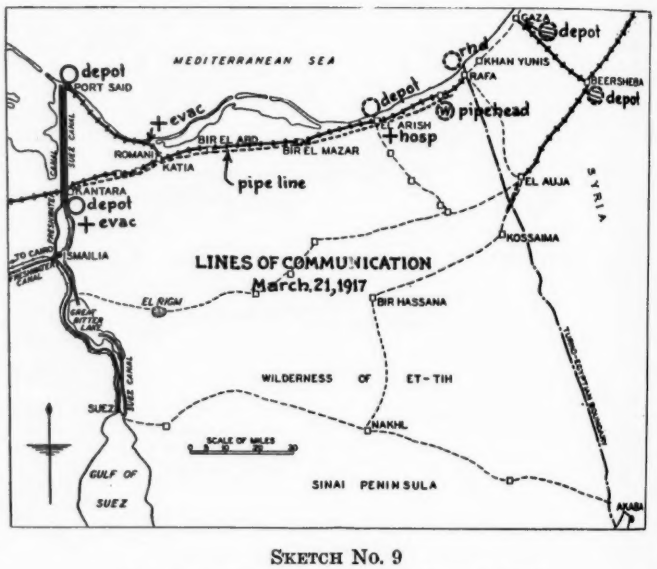
LINES OF COMMUNICATION 1 DECEMBER, 1916

The pipehead continued at Romani for several months owing to a shortage of pipes. On 10 September a shipload of 12-inch pipes arrived from the United States and the extension of the pipe line was begun. Until the line was extended much of the rail traffic, therefore, was engaged in the movement of water to the advanced water refilling point at the railhead.

On 21 December, the British troops drove the Turks out of El Arish, and on 4 January, 1917, the first train pulled into the village of El Arish, 11 months after the advance began from Kantara, a distance of 95 miles. The pipehead reached El Arish one month later.

Soon after the British occupied El Arish, ships arrived with supplies. Landings of these supplies were made on the open beach, but with considerable difficulty owing to the heavy surf. This delivery of supplies greatly alleviated the transportation problem. An advanced depot was soon established to supply the operations of a force of three infantry divisions and one cavalry division, as the plan now contemplated a further advance.

The Turks resisted the advance and several battles were fought between El Arish and Gaza in each of which the British forces were successful. By the end of February the Turkish force had withdrawn into Gaza.



SKETCH NO. 9

LINES OF COMMUNICATION 21 MARCH, 1917

On 21 March, 1917, the railhead was established at Rafa, 140 miles from Kantara. The capacity of the line was 13 trains daily, which was adequate for the force. Six of the trains were required for railway construction and maintenance or for evacuation of sick and wounded; seven were used for supply and troop movements. Later on in 1917 the line was double-tracked to accommodate the increased force made available to General Allenby.

The Turks also had done some railroad construction. Beersheba was connected by a standard-gauge line from the north and to Gaza by a narrow-gauge line. The standard-gauge line had been extended southwest from Beersheba to El Auja but this extension was used but little. The original plan was to build the line across the plateau to the Suez Canal.

You will note the peculiar arrangement of the lines of communication of the hostile armies, in that they are parallel and only a short distance apart. The fact that the Turks were building this rail line was known by the British high command, but the decision not to turn inland with their own line of communication was based on the premise that the Turk, with inferior forces, would be obliged to withdraw his detachments from El Auja and abandon the rail line if the British continued to push to Rafa and beyond. Besides, the railroad construction along the coast was much easier, more water was available, and supply by rail could be augmented at Rafa by the sea route.

As a matter of fact, the Turk rail line was attacked from time to time by British detachments and culverts were de-

ROYAL HORSE ARTILLERY IN ACTION AT RAFA, 9 JANUARY, 1917

(Note ped-rails to facilitate movement over sand.)

stroyed at several places, so that by the time the British seized Rafa, the Turks were forced to abandon the extension south of Beersheba. Four officers and about 100 men in one morning destroyed 13 miles of standard-gauge road and a number of culverts and bridges. The need for protection of lines of communication is thus again illustrated.

By the early part of 1917, 12,000 tons of pipe for water supply had been laid across the desert by the British. Notwithstanding the supply by the pipe line was none too plentiful. Of the 600,000 gallons pumped into the pipe line at Kantara only 36,500 gallons reached the terminus of the line, indicating the quantity required by men and animals serving along the line of communication. In the Rafa area, large wells developed by the British engineers made possible the augmentation of the force in men and animals for the next operation, which was to be the capture of Gaza.

Rafa was rapidly developed into a large depot. The supplies stocked there were adequate for the contemplated offensive. The difficult problem of transporting these supplies in advance of the railhead remained, even though the camel strength of divisions was greatly increased. However, the soil in the new area now permitted of limited movement of wheeled vehicles, and the trains of the divisions were reorganized so as to provide a greater radius of action of the force. Fifteen supply trains were improvised, each with a capacity of 70 tons, consisting of camels, limbered wagons, and trucks. Even with this new organization, the maximum radius of action from a water supply point for the mounted units was 20 miles.

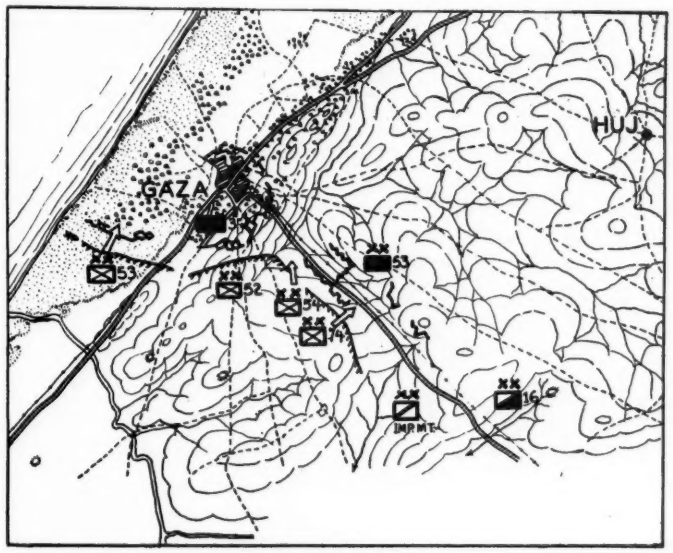
A word about evacuation. At the railhead, patients were accommodated temporarily in field ambulances. Hospital stations were set up at several of the oases along the rail line. Stationary or evacuation hospitals were established at Kantara, Port Said, and on the coast north of Katia. General hospitals were located in Egypt proper. By March, 1917, three hospital trains were in use on Sinai railway.

SKETCH No. 10
FIRST BATTLE OF GAZA POSITION AT DUSK 20 MARCH, 1917

The great difficulty in evacuation here, as in any combat area, was the removel to aid stations.

The British attacked Gaza on 26 March and succeeded in surrounding the town. By dark the cavalry was in need of water. Its withdrawal was necessary. Therefore, in order to prevent the infantry flank from being left in the air, with Turkish reinforcements approaching, the withdrawal was ordered. The *coup de main* failed when victory was within grasp. The British casualties approximated 4,000.

General Murray prepared at once for another attack. The railroad was pushed to Deir el Belah by 5 April. Additional supplies were landed on the beach. Some roads were built and crossings over the Wadi Ghuzzee were improved. The Turks in the meantime reinforced the garrison and extended the flank.



SKETCH No. 11
SECOND BATTLE OF GAZA 19 APRIL, 1917

On 19 April the second attack on Gaza was launched against a prepared position. No envelopment was possible owing to distance of the new east flank from the water supply. By evening the British casualties were about 7,000, the supply of artillery ammunition was low, and a success of the frontal attack seemed improbable. The British withdrew.

Sir Archibald Murray, the retiring commander, received great credit from General Allenby who replaced him, for creating the line of communication which made possible the victories in Palestine which made Allenby famous.

It is apparent from the foregoing that the nature of a theater of operations may require extensive adjustments of usual means and methods of supply. This the British did in Egypt and Palestine and with success. The most impressive lesson to be derived from a study of these operations is the close relationship that will and must obtain between strategical or tactical plans and the execution of these plans, and those unheralded matters that are labelled "supply and evacuation."

Command and General Staff School Extension Course

THE NEW COURSE*

The course as rewritten will consist of Section I—Preparatory Course, and Section II—Command and General Staff Course. The new course is listed below.

a. Section I—Preparatory Course is composed entirely of common subcourses, as follows:

Subcourse I.—Organization of the Infantry Division (triangular). Lessons 1 to 3 and an examination. To consist of Common Subcourse 18.

Lesson	*Subject*	*Hours*
1	Military Organization — The Tactical Organization of the Infantry Battalion, Regiment, and Division, and the Characteristics of Infantry Weapons	2
2	Military Organization — The Tactical Organization of the Artillery Battalion, and Regiment of Division Artillery, and the Characteristics of Artillery Weapons	2
3	Military Organization — The Organization of Headquarters and Service Units of Infantry and Artillery Battalions and Regiments, and the Organization of Division Headquarters and Special Troops	2
	Examination	3

Subcourse II.—Combat Orders and the Solution of Map Problems.— Lessons 1 to 7 and a review lesson. To consist of Common Subcourse 4.

Lesson	*Subject*	*Hours*
1	Tactical Study of Terrain	3
2	Commander's Estimate of the Situation	3
3	Abbreviated Estimate of the Situation	3
4	Technique of Field Orders — Contents of Field Orders	3
5	Technique of Field Orders — Preparation of Field Orders	3
6	Administrative Orders — Contents of Administrative Orders	3
7	Administrative Orders — Preparation of Administrative Orders	3
	Review Lesson	3

Subcourse III.—Tactics and Technique of the Separate Arms. (4 Parts)

Part I.—Tactics and Technique of Infantry. Lessons 1 to 10 and a review lesson. To consist of Part I, Common Subcourse 23.

Lesson	*Subject*	*Hours*
1	Infantry — Operation of Headquarters and Service Units Infantry Organizations to Include Communications	3
2	Infantry — The Infantry Regiment; Advance and Flank Guards	3
3	Infantry — The Infantry Regiment; Security at the Halt	3
4	Infantry — The Infantry Regiment in Attack	3
5	Infantry — The Infantry Battalion in Attack	3
6	Infantry — The Rifle Company in Attack	3
7	Infantry — The Infantry Regiment in Defense	3
8	Infantry — The Infantry Battalion in Defense	3
9	Infantry — The Heavy Weapons Company in Attack	3
10	Infantry — The General Use of Tanks	3
	Review Lesson	3

Part II.—Tactics and Technique of Field Artillery. Lessons 1 to 6 and a review lesson. To consist of Part II, Common Subcourse 23.

Lesson	*Subject*	*Hours*
1	Field Artillery — Reconnaissnace, Selection, and Occupation of Positions by a Field Artillery Battalion and the Establishment of Communication and Liaison	3
2	Field Artillery — Employment of a Light Field Artillery Battalion in Advance Guard Action During a Meeting Engagement	3
3	Field Artillery — Light Field Artillery Regiment in Attack	3
4	Field Artillery — Medium Field Artillery Regiment in Attack	3
5	Field Artillery — Division Field Artillery in Defense	3
6	Field Artillery — Division Field Artillery in Attack (To Include Ammunition Supply)	3
	Review Lesson	3

Part III.—Tactics and Technique of Cavalry, Horse and Mechanized. Lessons 1 to 6 and a review lesson. To consist of Part III, Common Subcourse 23.

Lesson	*Subject*	*Hours*
1	Cavalry — Organization of Horse Cavalry and Its Employment in Attack	3
2	Cavalry — Employment of Horse Cavalry in Reconnaissance and Counterreconnaissance	3
3	Cavalry — Employment of Horse Cavalry in Security	3
4	Cavalry — Employment of Horse Cavalry in Delaying Action	3
5	Cavalry — Organization and Tactical Employment of Mechanized Cavalry	3
6	Cavalry — Combined Employment of Horse and Mechanized Cavalry	3
	Review Lesson	3

*Except for officers selected for the course commencing in September 1940, the War Department has established as a prerequisite for attendance as a student at the Command and General Staff School, the completion of the Preparatory Course (Letter W.D. A.G.O. 12 April 1940).

Part IV.—The Tactics and Technique of Antiaircraft Artillery; Combat Aviation; Engineers and Chemical Troops; Antiaircraft and Antimechanized Security Measures; Signal Communication and the Use of Combined Arms. Lessons 1 to 7 and a review lesson. A new part; to be written and added to Common Subcourse 23 as Part IV.

Lesson	Subject	Hours
1	Employment of Antiaircraft Units in Support of a Division in Attack	3
2	Employment of Antimechanized Units with the Infantry Division	3
3	Employment of Light and Medium Tanks in Support of a Division in Attack	3
4	Employment of Combat Aviation in Support of Ground Troops	3
5	Employment of Demolitions and Obstructions by a Division to Interfere with the Operations of a Hostile Mechanized Force	3
6	Employment of a Motorized Infantry Regiment Reinforced, as an Encircling Force in Pursuit, to Include a Detachment of Mechanized Cavalry as a Covering Force	3
7	Employment of Mechanized Cavalry	3
	Review Lesson	3

Subcourse IV.—Command, Staff, and Administration for the Division. To consist of Common Subcourse 21. (2 Parts)

Part I.—Administration. Lessons 1 to 6 and a review lesson.

Lesson	Subject	Hours
1	Organization of Combat Zone for Supply and Evacuation, and Principles of Supply and Evacuation of a Division	3
2	Ammunition Supply — Division in Attack	3
3	Class I and Class III Supply — Division in Attack	3
4	Medical Service — Division in Attack	3
5	Administrative Plan — Division in Attack	3
6	Movement of an Infantry Regiment by Motor Transport	3
	Review Lesson	3

Part II.—Command and Staff Procedure. Lessons 1 to 7 and a review lesson.

Lesson	Subject	Hours
1	The Division Staff	3
2	Functioning of the Commander and General Staff of a Division in Attack	3
3	Functioning of the Commander and General Staff of a Division in Attack	3
4	Functioning of the Special Staff of a Division in Attack	3
5	Functioning of the Commander and General Staff of a Division in Attack	3
6	Functioning of the Commander and General Staff of a Division in Attack	3
7	Functioning of the Special Staff of a Division in Attack	3
	Review Lesson	3

b. Section II.—Command and General Staff Course.

Subcourse I.—Combat Intelligence. Lessons 1 to 6 and a review lesson.

Subcourse II.—Tactics.
Part I.—Lessons 1 to 9 and a review lesson.
Part II.—Lessons 1 to 9 and a review lesson.
Part III.—Lessons 1 to 9 and a review lesson.

Subcourse III.—Logistics.
Part I.—Theater of Operations, Supply and Evacuation. Lessons 1 to 9 and a review lesson.
Part II.—Troop Movements by Marching, Motor, Rail, and Air. Lessons 1 to 9 and a review lesson.

Subcourse IV.—Command and Staff. Lessons 1 to 9 and a review lesson.

Subcourse V.—Troop Leading.
Part I.—Lessons 1 to 9 and a review lesson.
Part II.—Lessons 1 to 9 and a review lesson.

Subcourse VI.—Special Subjects. Lessons 1 to 6 and a review lesson.

* * * * * * *

Nations should never *be surprised by their own unpreparedness. It is pardonable to be defeated, but never to be taken by surprise.—Frederick the Great.*

Library Bulletin

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Vander, Dr. Adrian.—**Asthma: its symptoms, causes and cures.** 1940 [616.23]

Villard, Oswald Garrison:

Our military chaos. The truth about defense. 1939 [M 103-C.73-A]

Within Germany. With an epilogue, England at war. 1940 [M 943-A]

Walton-Kerr, Philip St. C. — **Gestapo.** 1939 [M 505-E4]

White, General Ared.—**Attack on America.** 1939 [M 502-C]

Whitton, Lieut. Colonel F. E. — **Deeds which should not pass away.** 1939 [M 904-C.42]

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Wilson, William E.—**The Wabash.** (Rivers of America series). Edited by Stephen Vincent Benet and Carl Carmer. 1940 [977.2]

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World Almanac and book of facts for 1940. Edited by E. Eastman Irving. 1940 [310]

World over in 1939. 1940 [909]

Yeats-Brown, F. — **European jungle.** 1940 [M 940-A]

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AIR BASES

1. Air bases are an essential requirement in the application of Air Power.

2. Air bases must be designed to meet the war requirements which the base is intended to serve. These requirements may be far greater than those of the peace garrison of the base.

3. An outlying base must be adequately stocked in peacetime with supplies and ammunition to meet the requirements of all forces operating from that base in war until such time as movement of supplies from the mainland can be initiated and maintained.

4. Air bases and other installations essential to the operation of combat aviation will form primary objectives for the attack of hostile aviation.

5. The application of Air Power is limited to the useful tactical operating radius of its equipment. Beyond this radius the most powerful air force cannot exert Air Power.

6. As a minimum, Air Power must be exerted to a greater distance from our vital installations than the practical operating radius of hostile bombardment.

This may be accomplished in two ways, viz:

(a) By adequate radius of action of our airplanes.
(b) By wise strategic location of our Air bases.

7. Such bases must be located to permit aviation to cover within its radius of effective operations, all land and sea areas from which enemy forces can vitally affect our national defense.

Book Reviews

By Major William H. Speidel, *Infantry*

PRELUDE TO VICTORY

By Brigadier General E. L. Spears

640 pages . . . London: Jonathan Cape Ltd.

The early announcements of *Prelude to Victory* were immediately greeted with enthusiastic acclamation by those readers who well remember their impressions of General Spears' *Liaison 1914*, that great documentary narrative of the Battle of the Frontiers and the parts played by the three principals—French, Lanrezac and Joffre. This enthusiasm soon gave rise to a popular demand for *Liaison 1914*, a demand which unfortunately is difficult to satisfy as the book is now out of print. The author's second book, as Mr. Winston Churchill states in his introduction, is "of the same quality and style." It deals entirely with the offensive of the year 1917, which was planned by General Nivelle. General Spears, as liaison officer between the Allied Higher Commands, occupied a position which gave him the opportunity of knowing much that passed behind the lines as well as at the front. Perhaps no other officer is as well qualified to tell the story as authentically and as completely.

Following the account of the downfall of Joffre, General Spears presents the details of the political intrigues which led to the appointment of Nivelle and the adoption of his plan. The story of the offensive, which ended in the defeat of the French on the Aisne on April 16th and the downfall of Nivelle, discloses a brilliant perception and analysis of the human causes responsible for the most serious disaster sustained by the French in the Great War.

Marshal Joffre was on his way to America. He "knew what it all meant; the attack had failed. Time had conquered once more. Time, aided and abetted as it had been before, as it was to be again, by the blindness and folly of men."

THE GERMAN ARMY

By Herbert Rosinski

267 pages . . . London: The Hogarth Press

For the man who must read as he runs, it is recommended that he read only the final chapter—*The New German Army*. This chapter summarizes to some extent the material that has been presented in the preceding chapters, and it is the only chapter that tells anything about the German Army as it exists today. This army, Mr. Rosinski states, "is not the product of a preconceived plan. It is the result of a complicated process in the course of which ideas regarding both its character and size have undergone profound changes since first seriously considered." The author believes that the tendency to minimize or ignore the decrease in strategic mobility, while stressing its effects upon the war as a whole, is characteristic of present day German military thought. The German military leaders are beginning to think in terms of a more restricted mobility; a temporary return to trench warfare is a possibility, and "therefore the form emphasized is the frontal break-through, while all actions demanding swift movement on the battlefield, such as the strategic retreat followed by a lightning counterstroke, which Seeckt emphasized so strongly, are questioned."

The reading of this final chapter is bound to stimulate an interest in a more detailed study of the historical background which influenced the development of the Prussian Army and cast the mold which impressed upon the German Army of the nineteenth century its dominant characteristics. The author traces this development from Frederick the Great through the era of reform, in which Scharnhorst and Gneisenau played the principal roles, and the successive influences of Clausewitz, Moltke and Schlieffen down to the application and abandonment of their theories in the World War. Following the World War he covers the organization of the Reichswehr and the relation which it bore to the new republic, its clashes with the military aspirations of the National Socialists and their final acquisition of the monopoly over the armed forces of the nation.

MANEUVER IN WAR

By Lieutenant Colonel Charles A. Willoughby

286 pages . . . Harrisburg, Pa.: Military Service Publishing Company

Maneuver in War traces the application of tactical principles to units of all sizes; it presents a compendium of the philosophy of war against a background of historical examples, with special emphasis on the continuity of maneuver forms in the principal campaigns of the eighteenth and nineteenth centuries and the efficacy of flank maneuvers. The author's discussion of the campaigns in Ethiopia, Spain and China is impressive in foretelling the trends of modern warfare. "In the east, the campaign in Poland is an echo of 1866 and 1914, and the ghosts of Schlieffen and von Moltke stalk in the conference rooms of the German General Staff; the pattern of Cannae is impressed upon the youngest staff officer."

Colonel Willoughby sees in the Napoleonic concept of maneuver certain, definite, unalterable truths which, in their most modern applications, still retain much of the original flavor. "There is very little intellectual difference between" the operation of the Ulm campaign "and an average, modern C. & G. S. S. map problem." A tabulation, showing a typical Napoleonic organization, requires but little stretch of the

imagination to perceive that it is "the foundation of all modern army organization."

Its 176 maps, conveniently located to illustrate the text to which they apply, contain no extraneous material. The student will be greatly relieved to find that he can follow the discussion of every historical example with a minimum of effort. He will be able to grasp an accumulation of facts in a more royal manner than that which must have been followed by the author who, to quote Count Schlieffen, assuredly had "to plow through a mass of uninteresting details."

BATTLE AGAINST TIME

By Heinrich Hauser

386 pages . . . New York: Charles Scribner's Sons

During the early part of 1939 Heinrich Hauser, a German author residing in the United States, returned to Germany for two and a half months to make a critical study of the economic aspects of the Third Reich. *Battle Against Time* presents an intelligent account of the impressions which he gathered during the preliminary stages which preceded the present war in Europe. This struggle, the author predicts, will not last three years, and before it is over it will involve the moral and economic collapse of the German nation. "The Hitler government will certainly not survive this war. But just as the last world war did not make the world safe for democracy, so this new world war will not free the world of Hitlerism. For Hitlerism is nothing more than a radical form of thought proceeding from a desperate nation."

The book, however, gives little support to these conclusions. Its survey of National Socialist Germany establishes the impression that the source of Hitler's strength is rather firmly established. "The State is reaching out its hands for every individual, hands that are now like claws. The individual is protecting himself by evasion, but doing it unconsciously, out of animal instinct. In this embryonic struggle, the German people have for adversary the most powerful political machine in the world."

Hermann Goering and Robert Ley are each given an entire chapter. Goering as "the full-blooded man of his race," despite certain human failings, is placed in a somewhat admirable light. The chapter on anti-semitism discloses some interesting data on the Jewish problem, obviously intended to support the anti-semitic attitude of the National Socialist Party.

The final chapter is devoted to a survey of the organization of the German Army and the nature of its association with the economic apparatus of the German Reich. "Never before in the history of the world has an army been burdened with such tremendous organization problems, problems which the best economists would refuse to tackle." Mr. Hauser holds no hope that Hitler will be overthrown by the army generals, or by any disillusioned portion of the Party. "*La grande silente* is the suppressed and, at bottom, peace-loving German people."

THE VOICE OF DESTRUCTION

By Hermann Rauschning

295 pages . . . New York: G. P. Putnam's Sons

In the foreword to the present volume, also published under the title *Hitler Speaks*, Hermann Rauschning states that his latest book is an accurate account of the conversations which he had with Hitler during the last year before his seizure of power and the first two years (1933 and 1934) of the National Socialist regime. It is his claim that he jotted them down under the immediate influence of what he had heard in exclusive circles concerning the real intentions of Hitler and the significance of the National Socialist ideology, and that therefore they may be regarded as practically a verbatim report. The author is an East Prussian junker, a former officer and landowner of the conservative and nationalist tradition, who joined the National Socialist movement in the belief that its political philosophy contained a practical solution to the reconstruction of Germany. As a prominent National Socialist he became the president of the Danzig Senate. When the party, however, demanded the complete extension of the dynamic principles of nazification to Danzig, and Rauschning began to realize the true import of its dangerous policies with respect to their influence on domestic as well as foreign affairs, he broke with the party and in the spring of 1935 went into exile.

One shudders at the utter frightfulness of these revelations and wonders why they were not told sooner. After he had passed into exile the author certainly was in no greater danger of physical violence than he is at the present time. Can one readily accept his apology as a valid excuse sufficient to warrant the delay? "To have published these conversations only six months ago, would have earned me at that time an accusation of malicious invention and defamation. Even hints which left the essentials unspoken aroused surprise and suspicion." There is always some suspicion attached to the credulity and motive of the "now it can be told" writer, especially to one who at one time enjoyed the innermost confidence of his superior. In this case the intimate confidant was listening to a superior who evidently found relief in the outward expression of every thought that in some way or another contributed to the development of his ambitious philosophy.

To many the revelations of Rauschning will be a source of gratification to their ever-growing suspicions. To the more conservative they will serve as a warning that there can be no relaxation of effort to safeguard the cherished principles of democracy. The book is a fitting complement to Rauschning's *The Revolution of Nihilism;* as a contribution to our shelves on Hitleriana it is indispensable.

WITHIN GERMANY

By Oswald Garrison Villard

87 pages . . . New York: D. Appleton-Century Company, Incorporated

Within Germany is a reflection of the impressions accumulated by Oswald Garrison Villard as a result of his recent observations in Germany over a period of three-and-

a-half weeks. During that short period of time Mr. Villard claims to have discussed conditions freely with government officials, bankers, soldiers, workers and ordinary citizens throughout Greater Germany. It is his opinion that, regardless of the attitude of the individual citizen, the general discontent and opposition to the Government expressed with startling frankness, the Germans are united in the hope that they can hold out for at least two years.

Despite the short length of time during which his observations were conducted Mr. Villard, due to his early education in Germany and his thorough knowledge of their language and national character, feels that his recent impressions present a cross section of conditions as they actually exist.

The author presents his recommendations for a peaceful termination of the war, based principally upon combatting anti-English propaganda by a wide distribution in Germany of leaflets setting forth the immediate war aims of the Allies. There seems to be no doubt but what Mr. Villard hopes that his own book may be the medium of conveying this information to the German people.

VERDUN

By Jules Romains

534 pages . . . New York: Alfred A. Knopf

Verdun, the eighth volume in the *Men of Good Will* series, is an independent narrative of the battle that brought the World War of 1914-1918 to its climax. Although it employs characters that have been introduced in preceding volumes, it can be understood by any reader who is being introduced to the series for the first time. The first half of the book is devoted to the prelude to the Battle of Verdun. It registers the growing feeling of the anxiety of the French and their gradual realization of the incapacities of the Verdun defenses to cope with the vastness of the German preparations that have been arrayed against them.

The second half covers the battle which opens with a crash, followed by a series of explosions. One unit after another and man after man struggle and stagger throughout the entire Verdun front, recovering from the effects of the terrific assault and finally taking steps to organize resistance. With furious action and emotional utterances the complete effect of the drama of a great war is deeply impressed upon the reader.

PROPAGANDA FOR WAR

By H. C. Peterson

357 pages . . . Norman, Oklahoma: University of Oklahoma Press

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The object of Mr. Peterson's scholarly study can well be summed up in the following quotation from the preface of his book *Propaganda for War:*

"The attempt has been made in the following pages to trace the development of British influences in the United States in the years of neutrality. The British propaganda organizations, their theories and practices, are treated in their relation to public opinion in the United States. In addition consideration is given to the various economic influences—influences which were propaganda of the highest order."

The book has been assessed with a definite quality of distinction in its employment as a source reference during the spring of 1939 in senatorial debates on American foreign policy.

During the World War our banking interests regarded London as the banking center of the world. It was quite natural that they should want the Allies to win the war, and to further this desire American money was caused to flow into the Allied countries from the very beginning of the war until the time came that America had to fight to save the loans. "The economic warfare as a whole made the United States a financial, if not a political ally of Great Britain and France. In addition it threatened the Central Powers with the national destruction which the armies of the Allies were found unable to accomplish. As soon as the Germans struck back at the blockade and the utilization of the New World as a base of supplies, they found themselves confronted not only by the might of Great Britain and her allies, but also by that of the United States. As far as the economic warfare was concerned, the American declaration of war took place in 1915. It was only natural that the military warfare should follow."

Mr. Peterson lays strong emphasis on the alleged fact that during the critical years the American political leaders accepted British propaganda without question. "A recent writer has remarked that 'it is not a grateful task to record the diplomacy of the United States during the period 1914-17,' for 'the conduct of the American Government during that period was a negation of nearly all the requirement of neutrality both in thought and in action.' Everything was distorted for the benefit of the British * * * Even the biographer of the British Ambassador conceded that 'during the period while America was neutral all the issues in dispute between England and America were decided as England wished.' "

The author makes a sincere appeal for rational thinking at a time when the country is under duress of great emotion and "credulity and misinformation can set in motion hysterical forces incalculable in their capacity for destruction." He contends that the period 1914-17 offers a valuable lesson that should be of great service in safe-guarding the nation's neutrality. "To some the history of the 'neutrality' period demonstrates that the United States cannot keep out of war. But the facts do not bear out any such contention. What it does prove is that it is impossible to be unneutral and keep out of war."

A NAVY SECOND TO NONE

By George T. Davis

508 pages . . . New York: Harcourt, Brace and Company

In his capacity as research associate of the Institute of International Studies at Yale University, Mr. Davis has presented to the student of the history and policy of the United States Navy a comprehensive study of the develop-

ment of American naval policy from the birth of the Republic to the present day. The text is generously annotated and indexed with a large number of references to official documents and other writings. The exhaustive nature of the study may be realized from the list of 357 private papers, official documents, letters, diaries, memoirs, addresses, biographies, histories, special studies, and newspaper and periodical articles contained in the bibliography.

The author duplicates, in some respects, the work done by Harold and Margaret Sprout in *The Rise of American Naval Power*. Both books, however, have been so admirably well done that each might be regarded as a supplement of the other.

There is little which deals with the romantic or dramatic phase of the United States Navy, except possibly those portions which treat of the influence of the writings of Admiral Alfred T. Mahan on the importance of sea power as a national policy, determining the rise and fall of empires. There is also some semblance of drama in the British gesture of friendship at Manila, that confronted the attitude of Germany and gave rise to the growing suspicion of Germany as a rival in the Pacific.

There is a noticeable shifting back and forth in violation of chronological sequence, but this is probably due to the haste in which the research was conducted, a haste that might well be pardoned in the light of the timely nature of the subject.

The high lights fall on the perpetual struggle between the "Big-Navy" and the "Small-Navy" schools, between the imperialists and the isolationists, a struggle that eventually results in favor of the policy of expansion. "No person can today urge anything less than a prudent policy of armed strength for the nation. The exigencies of the hour may make it necessary to halt the capital ship replacements in favor of the program of auxiliaries, aviation expansion, and industrial preparation. But at the same time let us bear in mind that the present American fleet and the additions previously authorized by Congress provide sea power adequate to guard the New World and to make any threat to our island empire a risk which no country could assume. Let us not squander the wealth of our people upon needless armament which may jeopardize the stability of our institutions or tempt us to pursue the will-o'-the-wisp of economic ambitions or power politics in distant parts of the world."

ONE MAN'S FIGHT FOR A BETTER NAVY

By Holden A. Evans

393 pages . . . New York: Dodd, Mead and Company

Commander Evans' autobiograpy is a bold and relentless attack against what he terms "the entrenched selfishness of the Navy Line." At the time of his retirement from the Navy in 1912, he had been a lieutenant commander on duty as a staff officer in the Construction Corps of the Navy. His chief efforts in that capacity were confined largely to (to use his own words) "a fight for economy and greater efficiency in our navy yards." Although launched without regard to tact, at times irritating and offensive, the story is extremely interesting and enlightening.

THE AMERICAN WAR OF INDEPENDENCE IN PERSPECTIVE

By Lieutenant General Sir George MacMunn

370 pages . . . London: G. Bell and Sons Ltd.

The object of General MacMunn's book is to minimize the case for rebellion against the mother country and to show that the efforts of Howe and Clinton would have proved successful had the American cause been unaided by the French. Without attempting to destroy the heroic American concept of Washington and to detract from the glory of Saratoga, the author presents his case in justification of the conduct of George III, his ministers and the King's Army.

Without a map of Yorktown and its vicinity, the action which culminated in the surrender of Cornwallis is difficult to follow. The dramatic climax of this affair does not fail to recognize the presence of French power as contrasted with the exhaustion of the worn out Americans. "Cornwallis himself was on the sick list and sent his sword by his Aide-de-camp and General O'Hara led out the proud force to its surrender, the British bands playing not unsuitably *The World Turned Upside Down*, through a long lane of French troops on one side, Americans on the other. The Americans looked worn enough, but the French were in all the pomp of the white cloth uniforms and orders of the *Ancien Régime*."

THEY WERE NOT AFRAID TO DIE

By A. C. M. Azoy

303 pages . . . Harrisburg, Pa.:Military Service Publishing Company

Paul Revere, Lexington and Concord; John Hancock and Samuel Adams, the concentration of militia forces in Cambridge, Artemus Ward, William Heath, Israel Putnam, Nathaniel Greene, John Stark, William Prescott and Dr. Warren; the Pyhrric victory of the British at Breed's Hill and the chagrin and astonishment of Howe, Clinton, Percy and Burgoyne; the assumption of command of the Continental Army by George Washington, his fortification of Dorchester Heights and the British evacuation of Boston; Long Island, Trenton, Princeton, Brandywine, Saratoga, Monmouth Court House and Yorktown; all these we have read and re-read, studied and criticized. "Source material on the period of the Revolution is now so complete that present-day writers cannot hope to add much that is new on the subject." Consequently Mr. Azoy adds nothing new to the history of this period. The value of his contribution to the field of military literature lies in the manner in which he has handled his material. He conveys the impression of a personal and intimate association with the principal characters, impressions that convey a first hand knowledge of contemporary action.

His artistic arrangement of composition is well portrayed by the manner in which he introduces two minor characters, who are later to play an important role on the political stage of early American history. Greene becomes impressed with the exceptional capabilities of a young captain of artillery and introduces him to Washington, who at-

tached him to his staff and made him his personal aide. "His name was Alexander Hamilton. (And just to show the omnipotent irony of Fate when she takes a hand in mortal matters, General Putman's aide at the same time was a youngster named Aaron Burr.)"

In his characterization of George Washington, Mr. Azoy presents no great heroic figure but a leader who "was to learn fast, never make the same mistake twice, and grow with his cause to the final confusion of his critics." Frederick the Great, in referring to the escape from the Assunpink and the victory at Princeton, mentioned these as "the most brilliant recorded in the annals of military achievements."

From this book the student of military tactics probably will learn nothing new; its reading will be profitable mainly to the extent to which it will arouse his interest in a further study of the Revolutionary campaigns, and in the refreshment found in a colorful and thrilling narrative.

* * * * * * *

I really do not see the signal. I have a right to be blind sometimes.

—Lord Horatio Nelson

Nelson lost the sight of his right eye at the capture of Calvi in Corsica (1794). Seven years later this misfortune provided him with an excuse for ignoring orders and thus averting a British defeat. . . . At the battle of Copenhagen (April 2, 1801), the commander of the British fleet, Sir Hyde Parker, was dispirited by the desperate defense of Olfert Fischer and his Danish sailors against a far heavier force. In the heat of action he flew the order to stop firing and retire. To obey would have exposed his ships to a raking by the forts and deprived his men of a victory which seemed within their grasp. . . . When the order was brought to the attention of Nelson, on the Elephant, he exclaimed:

"Damn the signal! Keep mine for 'closer battle' flying."

Then looking through his glass, he declared solemnly to his captain Foley that he "couldn't see" the signal of his superior. He was holding the telescope to his blind eye. . . . Assuming all responsibility for possible failure, Nelson forged ahead with his division into Copenhagen harbor, and after a severe combat irretrievably shattered the naval power of Denmark.

—One Thousand Sayings of History.

Directory of Periodicals

Included in this directory are only those periodicals from which articles have been selected. See also, "List of Periodicals Indexed and Key to Abbreviations."

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Catalog of Selected Periodical Articles

This section catalogs the articles selected from Library periodicals for the current quarter. Periodicals in this catalog are arranged alphabetically.

ARMY MEDICAL BULLETIN

January 1940

CHRONOLOGICAL NOTES ON AVIATION MEDICINE. From a compilation by Lieut. Colonel C. L. Beaven

ARMY ORDNANCE

March-April 1940

THE WAR IN EUROPE. AN ESTIMATE OF THE SITUATION AND A FORECAST. Major General J. F. C. Fuller, British Army, Retired

ORDNANCE WITH THE CAVALRY. FIELD SERVICE PROBLEMS IN THE FIRST CAVALRY DIVISION. Lieut. Colonel Daniels

SUBMARINE MINES. THEIR PURPOSE. CHARACTERISTICS, AND OPERATION. Captain Harriman

UNDERWATER DEFENSE. (Pictorial)

ARMY QUARTERLY (Great Britain)

April 1940

TOTAL WAR AND "BLITZKRIEG." Lieut.-Colonel de Watteville

THE GANGSTER ATTACK ON FINLAND

GERMAN IDEAS ABOUT TANKS

LEADERSHIP. Field-Marshal Cavan

THE WAR AT SEA — DECEMBER, 1939, TO FEBRUARY, 1940

A MOTORIZED RECONNAISSANCE UNIT IN THE POLISH CAMPAIGN. MLAWA — PRZASNYSZ — CIECHANOW

ITALY AND THE TRIPLE ALLIANCE. MILITARY CONVENTIONS BEFORE 1914. J. E. Tyler

CAVALRY JOURNAL

January-February 1940

HORSED CAVALRY AND THE GAS ENGINE'S CHILDREN. Brigadier General Reilly

MECHANIZATION AND MOTORIZATION. Colonel Stewart

March-April 1940

THE 1940 SPRING MANEUVERS. Lieut. Colonel Grimes

MAN ON HORSEBACK. Fletcher Pratt

CAVALRY IN THE JOINT ARMY AND NAVY EXERCISES. Major Gerhardt

CAVALRY IN BEACH DEFENSE. Lieut. Colonel Martin

BIRTH OF A DIVISION. Cary I. Crockett

SOUTH OF THE BORDER. Lieutenant Cole

CAVALRY JOURNAL (Great Britain)

January 1940

HUSSAR! Lieut. Colonel Ryan

BRINGING 'EM IN. RECRUIT PROPAGANDA SINCE ALFRED THE GREAT. Reginald Hargreaves

THE FORD OF KABUL RIVER. TRAGEDY OF NIGHT CROSSING, 2D AFGHAN WAR, 1879. Lieut. Colonel Murphy

April 1940

HORSED AND MECHANIZED. Captain Hitchcock

COAST ARTILLERY JOURNAL

March-April 1940

NATIONAL GUARDING OUR HARBOR DEFENSES. Major B. W. Boyes
ANTIAIRCRAFT TAKES TO THE AIR. Major L. A. Whittaker
MAN ON HORSEBACK. Fletcher Pratt
THE ROCK BELEAGUERED. Major C. W. Elliott
THE TAKING OF MONTFAUCON. Major E. Colby
NORTHERN CALIFORNIA AIRCRAFT WARNING SERVICE. Major D. W. Hickey, Jr.
THE INS-AND-OUTS OF MILITARY HAIR. Captain F. P. Todd
FROM BALLISTA TO BREECH LOADER. W. A. Windas

FIELD ARTILLERY JOURNAL

January-February 1940

DIVISIONAL ARTILLERY IN THE POLISH CAMPAIGN. Colonel Hartmann, German Army
THE BATTERY THAT SAVED THE DAY. Colonel Crockett

March-April 1940

FASTER FIRE DIRECTION FOR LIGHT ARTILLERY. (The 1940 Prize Essay) Lieutenant Thielen
THE BRITISH ARMY DIVISION OF TODAY. W. A. S. Douglas
NEW FIELD ARTILLERY TRANSPORTATION. A PREVIEW OF OUR NEWEST AUTOMOTIVE EQUIPMENT. Major Campbell
MILITARY RESERVES AND RESOURCES. Colonel Lanza
A STRENUOUS TWO WEEKS. Colonel Levy, FA-Res.
75-MM GUN ADAPTED FOR USE AS ANTITANK GUN. By R.C.S.

FIGHTING FORCES (Great Britain)

February 1940

THE RUSSO-FINNISH WAR
EVOLUTION OF AIR WARFARE: SHOULD THE ARMY HAVE ITS OWN AIR FORCE? By G. O. M.

April 1940

THE RUSSO-FINNISH WAR

LA FRANCE MILITAIRE (France)

BY CAPTAIN M. R. KAMMERER, Infantry

23 January, 3 February 1940

GERMAN VIEWS ON THE USE OF MODERN ARTILLERY IN THE ATTACK. [Opinions allemandes — L'attaque d'artillerie moderne.] A. Niessel

The essentials of these articles were taken by the author from discussions in the "Artillerische Rundschau." Major Gaede, an inspector of German artillery, wrote his opinions on the artillery requirements of a corps attacking a division on a two and one-half mile front. His calculations were severely criticized by General Eimannsberger, an artilleryman who has not forgotten his experiences of 1914-1918.

Major Gaede assigns 240 guns to the corps and distributes the 60 batteries as follows:

	105-mm Howitzers	100-mm Guns	150-mm Howitzers	150-mm Guns	210-mm Mortars	TOTAL
1st Division (Main Attack)	12	3	9			24
2d Division	9	1	5			15
Corps Artillery	6	3	6	3	3	21
TOTAL BATTERIES	27	7	20	3	3	60

The artillery preparation proposed by Major Gaede would last 100 minutes separated by three ten-minute pauses, the object of which is to confuse the enemy as to the moment of launching the attack. With all guns firing at half their maximum rate of fire, about 25,000 rounds of ammunition are required for the preparation.

The rolling barrage is laid down by the 39 batteries of artillery with the divisions. The barrage advances 200 yards every six minutes unless the necessity arises for halting it to avoid getting too far ahead of the infantry. Firing at two-thirds the maximum rate of fire, 40,000 rounds of ammunition would be required for the rolling barrage to cover a depth of 3 miles. During the 2½-hour barrage the corps artillery would expend 15,000 rounds on special targets. These figures should be increased by 50% (27,500 rounds) to take care of unforeseen circumstances once the attack has been launched.

General Eimannsberger calls attention to the fact that Major Gaede's distribution of guns leaves only 96 to a mile of front, whereas in 1918 the German High Command acknowledged the necessity of 160 guns to a mile of front, although that figure was rarely attained. It would seem that at least that number would be necessary to support the attack against the fortified positions and lines of today.

While it is desirable to reduce the artillery preparation to a minimum, the necessary effectiveness cannot, according to General Eimannsberger, be obtained with the number of guns proposed in 100 minutes. He recalls artillery preparations in 1918 that lasted three or four hours and states that this length of time would have to be increased for effectiveness against modern fortifications.

Instead of pauses in the preparation he prefers to continue the preparation and shift the fires in order to deceive the enemy as to the moment of the attack.

As for the rolling barrages, General Eimannsberger finds that Major Gaede's calculations would have to be more than doubled in order to obtain the same density of fire that was used on many occasions during the War of 1914-1918. He is extremely skeptical of the possibility of stopping and starting a rolling barrage at will.

29 February, 7 March 1940

ATTACK OF THE REAR AREAS.
[L'attaque des arrieres.]

Whether offensive operations consist of a "war of nerves," economic warfare, front line attacks, military maneuvers or war in the air, the objectives are partially, if not completely, in the rear areas. There is nothing new about warfare behind the lines except that the means of waging such warfare have changed. Mechanization and motorization have greatly increased its possibilities.

Many military leaders today are wondering about the possibilities and values of aviation both in battle and in operations in rear areas. The Germans certainly put aviation to good use in their Polish campaign. The Chinese, Japanese, Russians and Finns have left no information of appreciable value on the subject. The only conclusions that can be drawn at this time seem to be: aviation is extremely damaging against an enemy without the proper defenses; aviation can accomplish little against an enemy with well organized defenses regardless of the method or means of the attack. The real danger of aviation lies in the element of surprise. A plane can appear, attack and be out of sight in less than a minute, and such rapid action is liable to create chaos within an organization unless the troops are well trained.

21 March 1940

THE USE OF MECHANIZED FORCES IN THE POLISH CAMPAIGN.
[L'emploi des troupes blindees dans la campagne de Pologne, 1939.]
General Adaridi

Following a discussion of the forces, particularly mechanized, involved in the German campaign in Poland, the author cites a few situations that occurred and which convinced him that mechanized divisions should not be considered as self-supporting and should not be sent on independent missions. The mechanized division requires the support of other arms in order to gain a decision. The technique which developed the undeniable qualities of mechanized forces has also created the means of combatting them. The lessons learned from the Polish campaign should not be adopted as approved solutions for the German army operated under exceptionally favorable conditions that may never again be duplicated.

INFANTRY JOURNAL

January-February 1940

BACKGROUND FOR LIGHTNING WAR. Brigadier General Reilly
THE IRON BULLS OF JOHN BULL. Lieutenant Wilmeth
OLD ROUGH AND READY. Captain Downey
HOFFMAN. H. A. DeWeerd
FROM THE CHIEF'S OFFICE: INFANTRY IN OFFENSIVE COMBAT (I)

March-April 1940

ATTACK OR DEFENSE? Major Phillips
MAN ON HORSEBACK. Fletcher Pratt
THE TAKING OF MONTFAUCON. Major Colby
FROM THE CHIEF'S OFFICE: INFANTRY IN OFFENSIVE COMBAT (II)

JOURNAL OF THE AMERICAN MILITARY INSTITUTE

Winter 1939

LIFE AT A FRONTIER POST: FORT ATKINSON, 1823-1826. Edgar B. Wesley
LAND AND SEA POWER IN THE SECOND GERMAN REICH. Alfred Vagts
VAN DORN AND THE PEA RIDGE CAMPAIGN. Harvey S. Ford

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS (Great Britain)

January 1940

REMOVAL OF CASUALTIES FROM A LIGHT TANK (MARK VI). Captain Elliott

February 1940

THE PROBLEM OF SICK WASTAGE IN WAR. Lieut. Colonel Trist

JOURNAL OF THE ROYAL ARTILLERY (Great Britain)

January 1940

THE GUNS, GUNNERS, AND GUNNERY OF THE ENGLISH RENAISSANCE. Major-General Sir John Headlam
WAGGON HILL. Major-General Rowan-Robinson

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA (Great Britain — India)

January 1940

CONTROL, COMMAND, LEADERSHIP. Major-General Rowan-Robinson
THE BATTLE OF MAIDA. Lieut. Colonel Murphy

KRASNAYA ZVYEZDA (Russia)

BY LIEUTENANT JOSEPH DASHER, O. R. C.

11 November 1939

THE DEFENSE OF A DAMAGED TANK.
[Oborona avariynovo tanka.] Captain I. Ivanov

The crew of a damaged tank is indeed in a difficult situation, which it must be prepared to handle. If not in immediate danger of destruction by enemy action, the crew continues to fire with every means at its disposal, expending its ammunition in the most economical and most effective manner. When in danger of being captured the tank crew must resist to the very last. The author points out that during recent operations on the Ukrainian and Byelo-Russian fronts against the Poles, there were cases where disabled tanks were saved through the personal courage of the crews. Under no circumstances should the enemy be permitted to approach the tank, and to prevent this the tank commander should establish uninterrupted circular observation, together with circular firing, thus securing all sides of the tank. Every suspicious object within sight should be explored by means of a fragmentation shell or by machine-gun fire at short intervals. Special attention must be given to enemy attempts at setting fire to the tank. In using hand grenades care must be taken to prevent the enemy from jamming the trapdoor with a bayonet or spade. Pistols are used only when enemy succeeds in mounting the tank, and if he mounts the tower the latter should be rotated at high speed. The enemy may be thrown from the tower by the concussion which follows firing of an armor penetrating shell from the tank gun. Only when the situation of the crew appears hopeless may the tank be abandoned.

PROBLEMS OF HIGH VELOCITY IN ARTILLERY.
[Problemy vysokikh skorostey v artillerii.] Brigade Engineer G. Pokrovskiy

A scientific treatise of the possibilities of improvement in the velocity of artillery projectiles.

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15 November 1939

THE REGIMENTAL STAFF IN COUNTERACTION.
[Shtab polka vo vstrechnom boyu.] Colonel P. Dyachenko

Counteraction takes place in quickly changing situations. It is frequently characterized by insufficient information as to exact grouping of enemy forces, as well as by the speed of deployment from marching into combat order, and by an immediate attack. It is essential to retain the initiative over the enemy in deploying and beginning action. Boldness and decisiveness are imperative.

All this places upon the staff rigid requirements of mobility, exactitude, and smoothness of action. The direction of troops in combat must be quick, flexible, and fully responsive to the dynamics of counteraction.

26 November 1939

THE EXPLOITATION OF THE AIRPLANE AND ITS MOTOR IN WINTER.
[Zimnyaya eksploatatsya samolyota i motora.] Division Engineer E. Andreyev

In view of recent Soviet experiences in Finland these are instructive observations on the use of aircraft in winter conditions. Of special interest are the author's remarks on the use of airplane skis in place of the usual landing gear, as well as his recommendation for the handling of motors.

28 November 1939

STAFF WORK IN THE ADVANCE DETACHMENT.
[Rabota shtaba v peredovom otryadye.] Captain P. Palchikov

During the march a cavalry regiment is frequently part of the advance detachment of a cavalry division.

The principal problem for the staff under such conditions is the planning of reconnaissance, with wide employment of mounted reconnaissance patrols. In many instances mounted patrols, especially when dispatched directly along the line of the march, or when initiating counteraction, do not have sufficient time for negotiating the necessary distance, and are thus prevented from sending timely information. The author recommends, therefore, that the second assistant to the chief of staff have at his disposal some reserve patrols, to be used in such contingencies.

The maintenance of contact with reconnaissance patrols is a matter of paramount importance. One method of employing runners is discussed.

The most recent Soviet activity against Polish troops on the Ukrainian and Byelo-Russian fronts serves to show that cavalry can negotiate as high as 62 miles in 24 hours, averaging advances of 47 to 50 miles per 24 hours during a period of 3 to 4 days. When it is considered that a reconnaissance patrol advances 6 to 10 miles, and often more, it must be realized that not infrequently the cavalry patrol covers some 80 miles in 24 hours. The question arises as to whether it would not be advisable to assign armored vehicles (combat cars or tanks) for the disposal of the commander of the advance unit.

29 November 1939

WINTER CAMOUFLAGE.
[Maskirovka zimoy.] Army Engineer D. Shcheglov

The reduction of visibility of an object is attained by painting it to correspond to the surrounding terrain, and by placing it alongside of a differently colored spot. Thus, the best location of an object painted summer green is on a thawed patch of earth, along border of the snow. It is important that the shadow of the object must not fall against the snow, but against the thawed patch. Against the background of a building it is necessary to keep close to its corners.

White colored objects against the background of snow should be placed alongside of some dark spot, on which the shadow should fall. The object will then merge with the background of the snow.

Personnel dressed in winter shrouds, and located against a woody background, should protect themselves by branches or bushes, because camouflage of this kind tends to deform the object hiding behind it. Where bushes are not available, branches can be used, and these should be placed upright along the sides and in front of the man. This same method is employed for camouflaging white painted machine guns and field pieces. The author proceeds to discuss the camouflaging of trenches by the use of a cover of branches or brushwood, covered in turn by hay or straw and finally by snow.

All tracks visible in the snow should be carefully obliterated. One method for obliterating tracks left by a column of tanks, is to tie a coniferous tree behind the rear tank in such a manner that the dragging branches will rub out the tracks.

The cardinal principle of camouflage under winter conditions is strictest attention to all details and forethought.

4 December 1939

OVERCOMING OBSTACLES IN CLOSE COMBAT.
[Preodolenye prepyatstviy v blizhnem boyu.] Colonel A. Iliin-Mitkevich

Description of the activities of engineer troops in support of offensive action.

9 December 1939

CROSSING OF FROZEN RIVERS BY TANKS.
[Pereprava tankov zimoy.] Captain I. Ivanov

The crossing point is set according to information furnished by tactical and engineer reconnaissance. Tactical reconnaissance looks for the location and strength of the enemy and his equipment on the opposite bank, while the engineers ascertain such facts as approaches to the place of crossing, terrain features, condition of snow and ice along the route of movement, and the thickness of ice at the place of contemplated crossing. It is particularly important to ascertain the thickness of ice at the banks, as there are cases when ice breaks away near the bank, and the water hole thus formed is concealed by snow. At the same time the depth of the river under the ice must be also measured.

When ice is 16 to 20 inches thick, and the river is 1½ to 2 yards deep, light tanks of all types can cross in column formation without difficulty, at distances of 40 to 50 yards, over a frozen river of 60 to 80 yards in width. When ice is thinner tanks can cross only individually. If, simultaneously with the tanks, troops are crossing over the ice at a distance of 150 to 200 yards, it is necessary to reinforce the ice, because practice has shown that simultaneous pressure along a distance of 150 to 200 yards causes the ice to crack.

The methods of reinforcing ice are governed principally by the time factor. Various methods are employed. Mats are woven of straw and branches, placed on the ice and covered with water which is then permitted to freeze. In order to perform this operation over an area of 200 to 300 square yards, engineer troops will need to work 2 to 2½ hours with a hand operated pump. By this method the thickness of ice may be increased by 10 to 12 inches.

"Freezing on" is another method of reinforcing the ice, which does not require much effort or time. At temperature of 10 degrees Centigrade it is possible, with the aid of a hand operated pump, to increase the thickness of ice on an area of 800 to 1500 square yards. In employing this method it is necessary to clear the ice of snow and to erect snow borders for the pumped water.

The author goes on to describe methods of regulating traffic across the ice, and security measures in case of a break in the ice, pointing out that, as a rule, tanks should cross in low gear, maintaining an even speed, without stops or turns. When crossing ice, passing of other tanks is forbidden.

FORMATION FLIGHT.
[Polyot v stroyu.] Major A. Kurnikov

The ability to maintain and to maneuver in formation facilitates combat for pursuit craft, while for bombers this ability insures greater effectiveness of their bombing activities, and greater deadliness of machine-gun fire in defense against enemy pursuit craft. Inversely, when formation breaks up and scatters, the effectiveness of the flight group is reduced, while the ships which break away from the formation are almost always brought down by the enemy.

12 December 1939

THE ADVANCE IN A FOREST.
[Nastuplenye v lesu.] Colonel I. Kolesnikov

Offensive action in a forest will be governed to a great extent by the compactness of the forest growth and by the disposition of enemy defense. The more compact the forest growth, and the more time commanded by the enemy for the organization of defense, the more difficult it is to capture the forest.

Forest defense requires the formation of combat order in considerable depth, and the organization of defensive sectors, with blockhouses, in accordance with the principles of circular defense. The principal mass of automatic arms is concentrated on the first line of resistance, which consists of separate nests situated at close intervals and forming as if an unbroken line. The intervals between the nests are protected by barbed wire or other obstacles, and by flanking machine-gun fire. On the front line of resistance and in the rear of the defensive position blockhouses are erected. Defensive action is aggressive. Reserves are concealed and are employed for sudden counter-attacks.

In planning offensive action on wooded terrain it is necessary to designate both immediate and secondary objectives. Under usual conditions the rifle battalion will be expected to reach immediate objective at 1 to 1½ miles, and secondary objective at 2 to 2½ miles, and 3 to 4 miles for immediate and secondary objectives respectively.

Both tanks and artillery can be successfully employed in forest action.

17 December 1939

CONQUERING ARTIFICIAL OBSTACLES.
[Preodolenye isskustvennykh prepyatstviy.] Major M. Sochilov

Commonly known forms of man-made obstacles and countermeasures are discussed.

26 December 1939

THE REAR OF THE RIFLE REGIMENT IN OFFENSIVE ACTION.
[Tyl stryelkovovo polka v nastuplenii.] Captain S. Skryabin

The author develops views prevalent in the Red Army on the title subject, as based on the Red Army's Field Service Regulations.

The normal depth of the regimental rear sector is from 6 to 7 miles. Detachments assigned for service in the rear must move uninterruptedly behind the advancing units, remembering that the slightest delay or slowness on their part will bring about interruptions in the normal flow of supplies to front line units.

In offensive action the work of the rear zone may be subdivided into two stages: preparation and advance. The period of preparation is devoted to concentration of ammunition, fuel and lubricants, medical and other usual supplies. Rear zone units are distributed. Liaison, regulating and signal services are installed. Measures for the protection of the rear areas are taken. During the second (advance) stage all of the work accomplished in the preceding period is placed in actual operation.

The regimental rear zone is echeloned as follows:

The first platoon of the transport company establishes and operates the ammunition supply center, placed in relation to the front line at such distance that normal transport means will be able to cope with the problem of ammunition supply.

The regimental medical unit establishes battalion first aid stations ½ to 1 mile behind the front line, and the regimental medical center 1½ to 3½ miles behind the front line.

Veterinary first aid station is located 3 to 5 miles behind the front line.

The regimental artillery supply center is placed 1½ to 2½ miles from the artillery firing positions.

Second platoon of the transport company, the quartermaster repair shops, and the regimental field hospital, all are placed at the rear limit line of the regiment.

27 December 1939

TANKS IN BATTLE FOR POPULATED POINTS.
[Tanki v bor'be za naselyonnye punkty.] Lieutenant A. Shishkin

If, as a whole, combat in populated points has been always considered to be one of the most complicated forms of warfare, then for tanks it is even more difficult due to limitations in observation.

Every populated point can be transformed easily into a stronghold of antitank resistance, and even a small quantity of artillery can seriously endanger the movement of tanks.

Difficulty of observation from the tank affords the enemy the opportunity to remain undiscovered in buildings, permitting the tanks to pass, and then cutting off the advancing infantry from the tanks, while striking the latter from the rear, using incendiary means. Narrow or blind streets are veritable traps for tanks.

Tank activity in populated points requires very thorough reconnaissance and organization of offensive action, as well as special combat tactics when inside the populated point, together with very exact and flexible cooperation between tanks, infantry and artillery.

In the capture of the city of Wilno from the Poles by Soviet tank units in September 1939 it was shown that tanks are capable of independent action and of holding their gains until relieved by other arms.

30 December 1939

DRIVING TANKS IN DEEP SNOW.
[Vozhdenye tankov po glubokomu snyegu.] Captain P. Channov

In preparing the tank for travel over a terrain covered by deep snow, close attention must be given to careful mechanical checkup before starting. Caterpillar tracks must be loosened.

As a rule tanks move in deep snow in second gear. Turns or gear shifting should be avoided to prevent stalling, which is frequently tantamount to actual loss. Turns should be also avoided on snow covered country or field roads. In extreme necessity turns should be made as smoothly as possible, to prevent disengagement of the caterpillar tracks. Individual places, covered by deep drifts, should be negotiated at high speed, in high gear. The body of the tank may be used for gradual plowing through high drifts, by repeated changing from forward to reverse speed and back again. Tank chauffeurs should receive special training in winter driving.

3 January 1940

BOMBARDMENT AIRCRAFT IN COMBAT.
[Boyeviye Deystviya Bombardirovshchikov.] Major V. Zverev

Discussion of basic principles of aerial navigation, observation and gunnery during combat.

12 January 1940

ENGINEERS IN COMBAT FOR DEFILES.
[Inzhenernoye obespechenye boya za tesniny.] Brigade Commander I. Galitskiy

Boggy terrain, lacking in roads and abounding in solid forests, forms a number of defiles, frequently of considerable depth. Offensive maneuverability is, naturally, very limited under such conditions, and combat is directed principally for the possession of such defiles. Offense is conducted in several sections, each section usually being composed of an infantry battalion reinforced by artillery, tanks, and other equipment, as well as with one or two platoons of engineers (sometime a full company), and a small chemical unit supplied with antigas equipment.

During winter months artillery is moved on sled mounts. If the terrain is especially difficult and there are ice-covered hills, tanks should have spurs (cleats).

An especially important mission is entrusted to the engineers. They have to destroy explosive obstacles, clearing the way for infantry and artillery. They must have blasting equipment and tractors with attachments for dragging, also snow plows. They should have a tractor column with sled trailers for transporting materials and parts for rebuilding demolished bridges. The engineer echelon proceeds between the outpost detachment and the main force. The roadway to be opened should be 6 to 8 yards wide.

18 January 1940

SKI FIGHTING IN WOODS.
[Lyzhniki v lesnom boyu.] P. Mikhaylov

Skis are of prime importance in forest combat under winter conditions. Ski units can easily maneuver on any terrain. Dense forests are not obstacles to skillful skiers. Quite the contrary, the appearance of ski troops in forests has the element of suddenness and surprise. Reconnaissance patrols on skis can penetrate deep into the enemy rear area and around the flanks. When intelligently employed, large ski units can inflict severe casualties.

MARINE CORPS GAZETTE

March 1940

THE AIRSHIP: STEP-CHILD OF OUR NATIONAL DEFENSE. Brockholst Livingston

THE ADMIRAL GRAF SPEE. Commander E. Ellsberg, U. S. N. R.

MILITARY LESSONS FROM THE CHINESE-JAPANESE WAR. Captain C. Rodney Smith

A REVIEW OF CAMOUFLAGE LITERATURE. Lieut. Colonel W. P. T. Hill

THE EMPLOYMENT OF THE MARINE RIFLE COMPANY IN STREET RIOT OPERATIONS. Captain W. M. Greene

MILITARWISSENSCHAFTLICHE MITTEILUNGEN (Austria)

BY MAJOR WM. H. SPEIDEL, Infantry

October 1939

ENGLISH — FRENCH — POLISH WAR AGAINST GERMANY. A MILITARY AND POLITICAL REVIEW TO 22 SEPTEBMER.
[Englisch-Französisch-Polnischer Krieg gegen Deutschland. Wehrpolitische übersicht Abgeschlossen mit 22. September.] Major General Paschek

The author reviews the political situation in Europe during the last days of August 1939, culminating in Germany's solution of the Danzig and Polish Corridor problem and the declaration of war by the Western Powers. There follows a discussion of these powers and their sphere of influence, the determined aims of Germany and the attitudes of the neutral powers.

This introduction is followed by an account of the campaign in Poland, which the author has captioned "The Collapse of Poland." This is a com-

prehensive piece of work, lending itself to an intimate study of the situation and the progress of the war by the inclusion of two charts and a general map. This article was included in the bibliography which was employed as a source for "The Collapse of Poland," page 25, C. & G. S. S. Military Review, December 1939.

THE SOUND LOCATING SERVICE IN ANTIAIRCRAFT DEFENSE.
[Der Horchdienst in der Luftverteidigung.] Colonel Schörgi

The speed of modern aircraft and its capacity to fly at high or low altitudes during all conditions of weather have enabled the attacker to strike with the advantage of having been able to exploit the element of surprise. To wait until he is seen may be too late. If he can strike without being seen, he must be heard and definitely located.

Colonel Schörgi gives a description of modern sound locating equipment and discusses the methods of its employment and the importance of the proper selection and training of its operating personnel.

THE CONFLICT IN EASTERN ASIA.
[Der Konflikt in Ostasien.] Major General v.Lerch

General von Lerch covers the war in China from 15 July to 15 September 1939, discussing the operations in Central, North and South China; the Japanese occupation of the harbors of Amoy, Swatow, Foochow and Wenchow; the construction of a third Japanese fleet and the casualties between August 1937 and April 1938 (27 officers, 306 men); and the skirmishes along the Manchurian border.

November 1939

FROM THE END OF POLAND TO THE EVENTS FOLLOWING ENGLAND'S REFUSAL. A MILITARY AND POLITICAL REVIEW FROM 22 SEPTEMBER TO 25 OCTOBER 1939.
[Von Polens Ende bis nach dem englischen Nein. Wehrpolitische Ubersicht 23. September bis 25 Oktober 1939.] Major General Paschek

General Paschek covers the new order in Northeastern Europe following the termination of the Polish War and fixing of the new boundary between Germany and Russia, the political situation in the neutral countries, the English blockade and the German counter-stroke, the refusal to accept the German peace plan, and the progress of the war.

THE UNION OF POLAND WITH THE RAILWAY SYSTEM OF CENTRAL EUROPE.
[Polens Anschluss an das mitteleuropäische Verkehrsgebiet.] General Ratzenhofer

The author explains the development of the present Polish railway system from the broad gauge system inherited from Russia, a system that precluded the free exchange of travel and commerce between Poland and Central Europe. The destruction of much of the old system by German soldiers during the World War of 1914-1918, its reconstruction on a standard gauge basis by German railway engineers, and the vast amount of reparations in the form of rolling stock received from Germany helped to build up the present system. The author believes that this could never have been accomplished by the Polish state alone.

THE USE OF AIRCRAFT IN CONDUCTING MILITARY GEOLOGICAL OBSERVATIONS.
[Militärgeologische Beobachtungen vom Flugzeug aus. Grenzen und Möglichkeiten.] Dr. Kühn

The article covers the missions of military geological observations made from the air, reasons why photographs alone cannot replace aerial observation, limitations of aerial observation, and the special cases in which aerial observation is superior to all other methods.

TRAINING IN WARTIME ECONOMY.
[Kriegswirtschaftliche Erziehung.] Dr. Dworczak

The author discusses the methods which may be used by a nation at war in training its citizens in the practice of the principles of national economy.

December 1939

THREE MONTHS' ECONOMIC WARFARE. A MILITARY AND POLITICAL REVIEW FROM 26 OCTOBER TO 26 NOVEMBER 1939.
[Drei Monate Wirtschaftskrieg. Ringen um die Neutralen, bereitgestellte Heere. Wehrpolitische Ubersicht. 26. Oktober bis 26. November 1939.] Major General Paschek

The following presents a brief outline of subjects covered:

(1) The Western Powers and the struggle over the neutral countries: (a) The Western Powers and the United States; (b) Germany and her friends; (c) The battle over the neutral nations.

(2) The military situation in the west: (a) Development during the last decade; (b) Prime importance of the question of fortifications; (c) Events since the end of October.

ENGLAND'S POSITION IN THE GERMAN BLOCKADE.
[England in der deutschen Blockade.] Colonel Mlaker

The author portrays England as the victim of its "splendid isolation." Dependent upon the resources of the outside world, the German counter-blockade is pictured as placing England in the position of a beleaguered fortress.

SOUTHEASTERN EUROPE AND ITS PARTICULAR VALUE TO GREATER GERMANY.
[Der südosteuropäische Raum und sein besonderer Wert für Grossdeutschland.] Dr. Heissenberger

The history of southeastern Europe since ancient times offers proof of the great difference, as well as the close relationship, that exists between the Orient and the Occident, Southeastern Europe and Central Europe. Following a development of this subject, Dr. Heissenberger presents the National Socialist ideology as a solution to the cultivation of a national consciousness among the nations of this section of Europe.

THE LIBERATED AREAS OF SLOVAKIA.
[Befreite slowakische Gebiete.] Colonel Mlaker

The purpose of this article is to show that the outcome of the Polish War enabled the people of Slovakia to regain their former territory.

THE ECONOMIC PROBLEMS OF IMPROVING THE NATIONAL DEFENSE.
[Die wirtschaftlichen Probleme der Aufrüstung.] Dr. Tomberg

The author presents a study of the cost of rearmament among the principal nations of the world.

CENTRAL ASIA. A MILITARY AND GEOGRAPHICAL STUDY.
[Zentralasien. Eine militärgeographische Studie.] Major General von Lerch

MILITARWISSENSCHAFTLICHE RUNDSCHAU (Germany)

BY CAPTAIN H. D. KEHM, Field Artillery

May 1939

GENERAL OF INFANTRY WILHELM VON BLUME.
[General der Infanterie Wilhelm von Blume (20.5.1919).] Major General von der Chevallerie

Another in the series of biographical sketches which this periodical features. The subject is an officer who was noted primarily for his writings. The author places him in a class with Verdy, Schlichting, and Goltz, characters whose work influenced the professional development of German officers.

General Blume entered the army in 1852. As a staff officer he had close contact with both Moltke and von Roon. The energy and intelligence displayed in his military writings attracted the attention of Bismarck. In 1878 this led to Blume's appointment to the international boundary commission. Later he served on the general staff in many capacities. During his military career, which ended in 1896, he commanded a variety of units, including the corps. His writings covered a broad field, including leadership, history and strategy. The best-known are: "Strategy, a study"; "The Influence of the Army in the French Revolution"; and "The Bases of Our Defense Forces." In 1913 he urged greater armament in "The Defense Forces of Germany as Compared with Those of Other Major European Powers." 1918 inspired him with the same reaction that Tirpitz (Military Review No. 76, March 1940, page 101) experienced. But realizing that his influence would have little effect, he remained silent.

COOPERATION BETWEEN SEPARATED PARTS OF AN ARMY.
[Das Zusammenwirken getrennter Heeresteile.] (III) Lieut. General Erfurth

In this issue the writer discusses the controversy concerning the teachings of Napoleon and Moltke on this subject; a controversy which obtained in Germany before the War. He also considers the doctrines of von der Goltz, Schlichting and Schlieffen. He calls Schlieffen the greatest of the modern, pre-War military theorists and claims that no doctrine has yet gained wider credence than Schlieffen's battle-of-annihilation theory.

THOUGHTS ON THE GERMAN NAVAL PROBLEMS IN THE WORLD WAR.
[Gedanken über die Probleme der deutschen Seekriegführung im Weltkriege.] (II) Vice-Admiral Aszmann

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THE TIME FACTOR IN THE ATTACK.
[Uber die Zeitdauer von Angriffsgefechten.] (II)

A series of brief comments by three different officers on the article published under the same title in the March issue.

General Muff points to the universality of the doctrine of defending in depth and indicates that in peacetime exercises the objective should be to instruct officers in appropriate methods of meeting the dispositions, fires, and manifestations of such a defense. He points out that attacks against single defensive positions must be carried out rapidly, but that breaking through the several positions of a zone takes time. He maintains that in peacetime training there must be more emphasis on teaching knowledge of terrain,

reconnaissance, military intelligence, and the courage to make prompt decisions and carry them through energetically.

Lieutenant Colonel Baentsch expresses similar ideas but emphasizes the fact that a major attack is not like a great long wave that breaks quickly over a wide front but consists of numerous thrusts, some deep and some shallow, all made with lightning rapidity. He suggests some methods by which umpires may depict such action in peacetime problems.

Major Westphal takes the point of view that all kinds of attacks from the very slow to the extremely rapid have taken place in time of war and must be expected to do so again. He announces a set of general principles and on that basis sets up a general series of tactical problems in the attack which a unit could carry out in a training program. He emphasizes that each problem should be thoroughly understood and practiced by all umpires and then presented to the troops in the most realistic manner so that the preconceived type of action will ensue. He urges that maneuvers and field exercises be frequently interrupted to permit (with appropriate safety precautions) training in the firing phases.

THE PENETRATION AS APPLIED IN THE BATTLES IN THE YEAR 1918.
[Der Durchbruchsangriff, dargetan an den Kämpfen im Jahre 1918.] (II) Lieut.-Colonel Solger

In the second installment of this series the writer discusses the plans and preparations for the St. Mihiel offensive of March 1918. Alternate plans were proposed and developed. Preparations and the bringing up of forces for the accepted plan were started in the beginning of January. The tremendous supply problems are discussed in considerable detail. The orders and tables which were prepared in planning the schedule on which troops were brought into the zone of the offensive are also covered.

LESSONS FROM THE ENGLISH TANK ATTACK AT CAMBRAI, 20 NOVEMBER 1917, AS APPLIED TO THE PRESENT.
[Der englische Panzerangriff bei Cambrai am 20. 11. 1917 und seine Lehren für die Gegenwart.] Major Müller

The writer describes the battle and presents certain conclusions which he derives from that study. Among the more significant are the following:

Artillery supports the attack by barrages and interdiction fires on critical areas and by neutralizing hostile observation. Attack aviation is employed against the most effective hostile weapons (in this case against German batteries) and reserves. It is advantageous to have tank guns placed as high in the tank as possible. The employment of tanks in mass is indicated as the most effective method. The preliminary massing of tanks close behind the line of departure appears unwise in the face of modern air observation. Detailed route reconnaissance and route marking are essential. Reconnaissance of the prospective battlefield is highly desired in order that massing tanks at bottlenecks may be avoided. Battle reconnaissance, probably by aircraft, is essential to keep tank units informed of hostile actions and dispositions. Close cooperation with other arms, especially the infantry, will yield the most far-reaching results. Tanks have only limited value in fighting in towns and villages because of the limitations placed on their mobility and the facility which such places provide for antitank guns and mines. The supply problem, as far as ammunition, fuel, and auxiliary materials are concerned, is tremendous. Accompanying troops must be ready to exploit tank successes promptly. Antitank guns are a formidable enemy and tanks must be assisted by other arms to neutralize them. Natural obstacles (in this case a canal) are very effective against tanks.

THE INFANTRY ATTACK IN THE FRENCH ARMY.
[Der Infanterie-Angriff im französischen Heere.] (II)

July 1939

THE HISTORICAL SIGNIFICANCE OF THE WORLD WAR.
[Die geschichtliche Bedeutung des Weltkrieges.] Dr. Fritz Hartung

The author feels that the Treaty of Versailles not only failed to make peace, but sowed the seeds of greater dissention. The war taught many nations, especially the defeated ones, that discipline and submission to unified leadership are their only salvation. The socialist movements in Italy and Germany in solving their problems of capital and labor are making an effect on the world in the solution of the problem between the "have" and the "have-not" nations. The revolution which the World War engendered continues to develop new systems.

BAPTISM OF FIRE.
[Feuertaufe.] Major Ebeling

In this very interesting article Major Ebeling describes in detail the experiences and reactions of the men in three units in engagements early in the War.

The first describes the part played by the 12th Grenadier Regiment in the battle of Mons, 23 August 1914. In seven hours the regiment lost 27 officers and 500 men killed, wounded and missing out of a combatant strength of 70 officers and 2,909 men.

The author states that the effectiveness of machine guns had "brutally disturbed" all peacetime conceptions of the progress of a battle. The results of excellent training, high morale and stamina alone enabled the men to carry through. Incidentally, the author brings out that new conceptions did not find their way into regulations until 1917. In a future war, the author says, we must expect similar disruptions of our preconceived ideas.

The second describes the experience of the Graf York von Wartenburg Jäger Battalion at Lahna — Orlau on the same day. This battalion was a part of the XX Corps which opposed the Narew Army. The battalion was driven from its position only after it had been attacked from three sides in overwhelming odds and had lost 15 of its 28 officers and 254 of its 1,091 men.

Here again the ability to survive as a unit and to meet actual battle conditions at wide variance from the peacetime conceptions were possible only because of the organizational spirit and the discipline instilled by good and thorough training.

The writer illustrates the comradeship which had been developed by citing the remarks of the commmander of an unusually good battalion who, when he was offered a new position, said: "I cannot leave the battalion now; my people would not understand it." A few days later he was killed in action leading "his people."

COOPERATION BETWEEN SEPARATED PARTS OF AN ARMY.
[Das Zusammenwirken getrennter Heeresteile.] (IV) Lieut. General Erfurth

General Erfurth concludes his study of this topic by citing illustrations from the World War, the Russo-Polish War, the Ethiopian campaign and the Sino-Japanese War.

His estimate is that the attack from exterior lines to effect an envelopment and a battle of annihilation is in general the most advantageous plan. It requires skillful leadership and well-trained troops. Advances in modern communications have overcome Jomini's objection: that communication, in such operations, was too difficult.

DELAYING ACTION AND ITS COMBAT PROBLEMS.
[Der Hinhaltende Widerstand und seine Streitfragen.] Lieut. Colonel Scherff

An historical discussion of various conceptions of what we used to call the passive defense. It contains summaries of the author's ideas on foreign doctrines.

THE PENETRATION AS APPLIED IN THE BATTLES IN THE YEAR 1918.
[Der Durchbruchsangriff, dargetan an den Kämpfen im Jahre 1918.] (III) Lieut. Colonel Solger

In this installment the author describes the preparations for the St. Mihiel offensive with reference to military intelligence, assignment of missions, the plan of artillery fires, and the employment of air forces in the Second Army.

TIME FACTOR IN THE ATTACK.
[Uber die Zeitdauer von Angriffsgefechten.] (III) Major General von Sodenstern

This writer believes that the essence of the attack is movement and the will to conquer. Every means must be used to expedite the issue of orders and plans must fit the conditions. General von Sodenstern makes the interesting comment in speaking of the need for using fragmentary oral orders in lower units; "Wire means the death of initiative."

THE YUGOSLAVIAN ARMY.
[Das jugoslawische Heer.]

THE GERMAN DEFENSE AGAINST FRENCH AND ENGLISH PENETRATIONS IN THE SPRING OF 1917.
[Uber die deutsche Abwehr der französischen und englischen Durchbruchsangriffe im Frühjahr 1917.]

December 1939 (Nos. 5 & 6)

GENERAL FIELD MARSHAL VON MACKENSEN'S 90TH BIRTHDAY.
[Generalfeldmarschall von Mackensen 90 Jahre alt.] Lieut. Colonel Förster

The author pays high tribute to the military knowledge of the famous German soldier. He shows that von Mackensen rose to fame and high rank from humble beginnings — a rather unusual thing in pre-war Germany. He attributes much of the General's success to his ability as a leader of men and the fact that his personal background gave him an understanding of men which the traditional German officer of that day did not have.

INCIDENTS OF THE POLISH CAMPAIGN, 1939.
[Einzelschilderungen aus dem Feldzug in Polen 1939.]

See also, "Foreign Military Digests," page 56.

This article is a compilation of stories concerning small units in the recent Polish campaign. The nature of the matters covered can be inferred from the following sub-titles:

The night of 31 August-1 September; The armored railway train in the battle at Konitz, 1 September; Baptism of fire — the assault on the fortified lines before Mlawa; Ammunition supply; An antiaircraft gun puts two Polish 40-mm antiaircraft guns out of action; Employment of radio by a communi-

cations battalion; the crossing of the Bug at Rybienko on 10 September; Night march; The employment of an artillery forward observer during the crossing of the Narew; Cooperation between a motorized reconnaissance detachment and motorized artillery; The engagement of the 3d Battalion, 63d Infantry, on 20 September at Tomaszow; River crossings by the 47th Engineer Battalion (motorized).

CONCLUDING THOUGHTS ON "THE TIME FACTOR IN THE ATTACK."
[Ergänzende Gedanken zu "Zeitdauer von Angriffsgefechten."
(IV) General Geyer

In this article the author of the original essay in this series reviews the comments. He also clarifies some of his own prior statements on points that seem to have been misunderstood and then adds some more thoughts on the subject. In the course of the discussion he brings out some general ideas on peacetime training.

He maintains that one of the main factors that makes for delay in prosecuting an attack is the need for cooperation between the different arms. "Contantly increasing technical developments and specialization have made the problem of cooperation between the arms the central and most difficult problem in military organization, training and leadership."

In peacetime training there is a tendency to decry the working out of time and space factors and making exercises conform to them. The trend is to urge that decisions and actions be based on "acting like a practical soldier according to the situation." To act on the basis of time and space computations is considered as a form of prophecy. The author holds that this is the wrong conception, and insists that the military leader must always consider time as a determining factor. At the same time he warns against making training stereotyped. [In this country we might say he warns against making "standing operating procedure" universally applicable.] To this end he suggests that extremes in time factors be ordinarily used in exercises rather than "average" figures. Thus in some cases or in some phases, advances of 2½ miles per hour in the attack should be employed; in others, movement should be slowed down to less than 100 yards per hour, or even stopped for an hour or more.

The willingness to take a risk must be instilled in all leaders. "Military history teaches that one generally knows very little of the situation."

General Geyer has very little of good to say for the old belief that one should always go on the theory that the enemy will do that which is most advantageous for him and most dangerous for oneself. He points out that if one followed this theory in connection with the danger of hostile air attack, one could never move. In connection with the discussion of this point, he makes the observation that: "Missed opportunities are more frequent in both war and peace than are failures resulting from too great daring. . . . A real victory wipes out many 'ordinary' failures and is far more valuable than a dozen 'ordinary' victories." Had the commanders at Tannenberg, Sedan, and Leuthen subscribed to the old theory there would have been no victories.

The author points out that his critics are all ready to admit that time works for the defender. He therefore concludes that where the situation is such that an attack must develop into a series of offensives nibbling through a deep zone, then an attack is unjustified.

He also holds that it is often better, in exercises, to have the umpires tell the commanders in plain terms what impression the situation is supposed to convey rather than to have them try to depict situations which should create that impression. In this manner emphasis is placed on taking appropriate action under given circumstances rather than on drawing particular conclusions from certain facts or impressions and then taking action.

Still maintaining stoutly that attacks must be carried out rapidly, boldly, and with all available power, the author warns against teaching schematic and stereotyped tactical thinking.

THE PENETRATION AS APPLIED IN THE BATTLES IN THE YEAR 1918.
[Der Durchbruchsangriff, dargetan an den Kämpfen im Jahre 1918.]
(IV) Lieut. Colonel Solger

In this installment the author describes in detail the events of 21 March so far as they concern the attack of the German XII Corps. The details of all phases of the artillery preparation are given, including battery missions, ammunition allowances and firing schedules (general). The description is especially detailed so far as the preparation for the attack of the 27th Division is concerned. The preparation fired for the other two divisions, the 107th and the 183d, is given but in less detail.

The advance of the infantry of the 27th Division, which made the main effort, is likewise covered in great detail. The operations are described as they took place and the situation summarized as it existed at H hour, at noon and at the end of the fighting that day. There is also a description of the situation as viewed from the hostile side and some observations made by the author.

FRENCH VIEWS ON THE ATTACK AND DEFENSE OF FORTIFIED FRONTS.
[Französische Anschauungen über Angriff und Verteidung an Festungsfronten.]

In this article the author draws certain conclusions as to French doctrines on the subject as derived from their official and semi-official publications. Some of the more important principles applicable in the defense of fortified fronts which this writer describes are:

(1) Many French officers believe that there has been too much attention to war of movement and not enough emphasis on the training in attack and defense of fortified positions. They conclude that, "Our lack of understanding of the nature of such combat will not protect us against facing it."

(2) The commanders of each defensive work must view this task as consisting of: first, supporting neighboring installations and the intervals between them and second, the close defense of his own position. The commander may pass to the second stage only when his own fort is directly endangered. When forced into this situation the commander must "die under the ruins of his position rather than surrender." (The garrison of each work consists of a force of all necessary arms under one commander. Its supply and evacuation are independent of other forces in the area.)

(3) Outposts are placed well to the front and are stronger than those in the defense of unfortified positions. When a major attack is foreseen, the outpost must maintain contact with the advancing enemy and delay his approach to the main battle position. If the battle position is penetrated, it must be restored by counterattack.

(4) The mass of the field artillery is employed in the intervals between fortifications and has missions similar to those of artillery in the defense of positions in the open. The artillery emplaced in the various works is formed into groupments and missions are assigned on the basis of their importance for the general defense of the area. When it is necessary for this artillery to give close support to a small sector (regimental, for example), groupments may be placed under the control of the commander of the direct support artillery of the threatened sector.

(5) While the fortifications are designed to make it possible for relatively small numbers of troops to hold a large area, it may be necessary to reinforce the garrisons of individual works with troops from the field forces. Plans for this case are worked out in peacetime. Such reinforcements are to be used in unoccupied installations and in no case are they to withdraw into the works occupied by the regular garrisons.

(6) Reserves which are not to be employed within fortifications are held, in division units, for employment in counterattacks or for the establishment of defensive positions in the rear in case of a defeat at the front.

(7) Since the sector assigned to field forces will generally embrace several fortifications, the garrisons of these establishments are placed under the command of the field forces initially and the fortifications are to be viewed as supporting arms for the defense. For the close defense of a particular work, the commander is entirely responsible and independent in his command.

(8) In the event that the campaign is carried to the enemy and beyond the fortified area, only the essential specialists are left in the fortifications and the bulk of the garrison is replaced by reservists of the older age groups.

According to this article the French accept the following doctrines as governing the attack of fortified areas:

(1) In general, the methods are to be the same as those employed in attacks against positions in the open except that more powerful means must be employed.

(2) Approach marches to assembly areas must be made during darkness or under cover of woods, fog or smoke.

(3) The attack must be preceded by reconnaissance in force and by a detailed photographic study of the entire fortified area.

(4) Every effort must be made to gain surprise, for it alone offers a prospect for success in these attacks and hence is essential to a greater degree than in any other.

(5) An attack on a fortified area requires the employment of vast amounts of artillery of the heavier calibers, and a great quantity of ammunition.

(6) Attacks must be supported by the heaviest tanks to complete the destruction of those installations which the artillery preparation has failed to destroy. They may also be employed against hostile installations which are so far back that the artillery can not reach them from its initial positions.

(7) Maps and sketches showing the detailed objectives of units as low as the battalion, must be prepared in advance. The attack itself must be an assault from the very beginning. Successive objectives must be closer together than they are in open warfare attacks.

(8) The attacking infantry must follow the fire of its artillery as closely as possible. In order to make this possible the closest liaison between infantry and artillery is essential.

(9) The regulations are silent on the details of the conduct of the direct assault on fortifications, but the Germans knew before the war the French conducted exercises involving attacks against fortifications comparable to the Westwall.

(10) Artillery regulations go into some detail concerning the conduct of fire on concrete emplacements. They indicate that a special shell with a hardened steel head is employed so that there may be some penetration before the explosion takes place. The shell of the 220-mm mortar is said to be able to penetrate reinforced concrete to a depth of 0.50 yards. The 280-mm, 320-mm, 370-mm and 400-mm weapons are also to be employed in such attacks. The ammunition requirements are estimated at from 100 to 150 rounds per piece per point target. Against armor plate it is estimated that the requirement is 400 rounds per piece for calibers of 320-mm or more.

(11) Installations and points of resistance that are passed by the attacking infantry are to be engaged by troops similar to mopping-up parties used in open warfare. These troops should be given special equipment and supported by engineers and tanks.

(12) When air forces are available they are to be employed against the installations in the rear areas, and to work closely with the artillery to destroy hostile reserves or to prevent them from coming to the front.

(13) The French believe that these attacks will in many cases last a long time and may consist of a series of successive attacks against the positions continued until one of them finally breaks through.

After considering the French doctrines on this subject it may be concluded, according to the article, that the French have manifested only one sign, the taking of photographs, which might indicate an intention to attack the Westwall. The raids and reconnaissances in force that have taken place

so far have had as their objective the securing of a stronger outpost line for their Maginot Line.

The prophecy made by General Armengaud in 1932 that land and sea forces and border forts would do France little good because the Germans would seek a quick victory in the air, has not been borne out. It is probable that the French have precipitated no major attack because they are led by Gamelin, whose ideas are expressed as follows:

"It is especially important not to lose the first battles. A real initial victory, especially if the success can be exploited, is the prerequisite for a short war."

SOVIET RUSSIA, A MILITARY-ECONOMIC ESTIMATE.
[Sowjetruszland, ein wehrpolitisches Bild.] Dr. von Niedermayer

Dr. v.Niedermayer points out that many people fear that a common front cannot be worked out by two such divergent ideologies, and that the agreements must at best be temporary and should be pursued with the maximum of caution and suspicion. Russia and Germany have always suffered when they did not work in harmony. Had Bismarck been in power in 1914, he never would have had Russia in the hostile camp. The enemies of of Germany have always had a horrible fear of a German-Russian alliance. How, the author asks, can the thing which the enemies of Germany dread to the utmost, be so bad for Germany?

Both Russia and Germany were unfairly treated at Versailles. Post-war misfortunes for both, such as the episodes in the Ruhr, at Memel, and in Silesia could have been prevented had they presented a united front. The Rapallo rapprochement, instigated by military leaders, gave both nations the first semblance of power in the post-war era.

The principal fears which have been expressed concerning the agreement are that Russia is fostering world revolution, and that bolshevism will gain a foothold in Germany.

As to the first, Russia has demonstrated that she is far too occupied at home to be concerned with world revolution. Furthermore, while there can be no doubt that Russians are interested to see their doctrines spread, they have for many years realized that world revolution is not a possibility and have ceased to foster it as an important international policy. In recent years there has been a very perceptible change in Russian ideology, in that there is now a far greater emphasis on national patriotism.

As to the second, there is no longer any vital danger of communism or bolshevism in Germany. National socialism is too strong. It can ward off the threat of foreign doctrines with little trouble.

For these reasons, the author concludes that the alliance is by no means unnatural but that it promises to be a source of power to both nations.

As to the economic-military appraisal of Russia:

(1) Transportation facilities are still woefully short of requirements. Tremendous efforts have been and are being made to correct this deficiency but the shortage is still acute. This applies to rail, road and water transport. Air transport is quite well developed but can by no means supplant the shortages in the other forms.

(2) Industrialization was developed too rapidly and was poorly organized. This condition came about because Russia viewed herself as threatened both in the west and in the east. With these threats removed, it is reasonable to expect that industrialization may develop in a more logical form and be coordinated with developments in transportation facilities.

(3) The natural resources of Russia are recounted. In general the author's summary agrees with information available in this country. He points out that despite the vast potential resources, limitations of transport and industrial capacity are such that many of them are not made available. Information as to Russian gold production has generally not been available in the United States; the author estimates that it may now exceed that of South Africa. He reports that it exceeded 200,000 kilograms in 1936 and 1937.

(4) Oil production, though second only to that of the United States, has not kept up with national requirements, principally because skilled workers and technical equipment were lacking.

(5) Synthetic production of rubber is well developed but does not meet national requirements.

(6) The armament industry has made tremendous strides in quantity production, but has left much to be desired in quality. Production is still below standard plans. The drive for independence from foreign patents, methods and experts, and the lack of a highly developed machine-producing industry, have tended toward retarding production. As compared to 1914, there has been a phenomenal increase in production in this field.

(7) The labor situation is still quite bad. There has not yet been established a great body of skilled workers nor a corps of technicians and foremen. The Russian tendency to laziness and their lack of precision and neatness are serious drawbacks to industrialization. The purges of recent years affected the critical classes of labor most adversely.

(8) In agriculture, collectivization and mechanization have developed rapidly. Both of them appear to have been misapplied and to have resulted in bad situations. The writer believes that most of the difficulties of distribution have been overcome so far as foodstuffs go. He does not believe that there is at present serious dissatisfaction among farmers; the development of more adequate tractor and fuel stations, better communications, and the fact that most of the present farmers have grown up since the Revolution have remedied conditions.

(9) From the population viewpoint it appears that there has been a decrease in the excess of births over deaths. The census which was expected to show a population of around 181 million in 1937 revealed that it had not quite reached 170 million.

(10) The peace strength of the army is estimated at 2 million and the reserves at 10 million, of whom it is believed that 6 million can be mobilized for war. Before this war about half of the army was stationed in the vicinity of Leningrad, in White Russia, and Kiev; and one-sixth was east of Lake Baikal, where it is estimated there were about 1,000 planes out of a total of about 9,000. Tanks are variously estimated between 6,000 and 10,000.

(11) The Russian navy is estimated at 250 units totaling about 270,000 tons. The fleet of 160 submarines is the largest in the world, so far as numbers are concerned. The fleet has previously been located with the thought of a war against both Germany and Japan.

(12) The value of the military forces suffered very decidedly from the effects of recent purges and the principle of having political representatives practically coequal with commanders. While it may be true that there was a gain in solidarity in the army when the officers with politically undesirable views were purged, there can be no doubt that the professional value of the army suffered materially. There is now a very serious shortage of skilled leaders. The character of the training was strongly influenced by the fact that Germany was viewed as a potential enemy and hence the emphasis was on a long war against initially stronger forces bent on a quick victory. Because of the fact that the Russian soldier has traditionally been very well cared for by the Soviet government, much better than many of the skilled workers, there is little basis for questioning his loyalty. The purges seem to have had little or no effect on the enlisted personnel.

In his conclusion the author states that the union of German organizing and technical ability with the vast resources of Russia which the Western Powers have so long tried to prevent has finally been effected. The threat to Russia's western border is removed, and there seems to be no real reason why a settlement with Japan could not also be reached. Now that Germany and Russia have established themselves to their mutual satisfaction in "between Europe and Asia" any attempt by other powers to interfere is a direct attack. An attack on Germany constitutes a threat to Russia.

MILITAR-WOCHENBLATT (Germany)

BY MAJOR WM. H. SPEIDEL, Infantry

2 June 1939

THE SELECTION OF HIGHER COMMANDERS IN THE ARMY.
[Die Auswahl der Führer im Heere.] Lieut. General Marx

Peacetime academic training should not be limited to officers up to and including the rank of colonel, but should include even the foremost general officers. This was slighted in Germany before the World War. The general staff trained its own personnel, permitting general officers to carry on their assigned duties independently. It should have been the function of the general staff to have made constant provision for the development of generals qualified for higher command (corps and army commanders and their staffs). The increase in the size of the army has produced more difficult problems, but problems which still can be solved. It must not reoccur that in the event of war responsible higher commanders must rely upon their staffs for the solution of their problems. A higher commander who cannot trust his own decisions should never assume such responsibility.

THOUGHTS ON THE APPLICATION OF WAR EXPERIENCES TO TROOP TRAINING.
[Gedanken zur Verwertung kriegsgeschichtlicher Erfahrungen bei der Truppenausbildung.] Captain Thäter

The subject is developed by the presentation of five historical examples from the Battle of Tannenberg.

9 June 1939

THE ELEMENT OF SURPRISE IN WAR.
[Uberraschung im Kriege.] General Wetzell

This article deals with a criticism of General Erfurth's book entitled, "The Element of Surprise in War." The subject of the criticism is developed by the use of several historical illustrations of open, as well as position warfare.

TANKS IN COMBAT WITH AND AGAINST CAVALRY.
[Panzerkraftwagen im Kampfe mit und gegen Kavallerie.] Lieut. Colonel Gonnermann

The article portrays combat operations of tanks operating with and against cavalry. It is illustrated by four sketches which serve to illustrate graphically the principal expositories contained in the text.

(1) Cavalry situation of the French Army about Lille during the evening of 8 October 1914.

(2) Fighting at Sainghin during the afternoon of 9 October 1914.

(3) Movements of the higher commanders of the IV, II and I Cavalry Corps, 10 October 1914, and their billeting areas during the night, 10-11 October 1914.

(4) The attack of the Bavarian Cavalry Division and the II Cavalry Corps between Estaires and Richebourg l'Avoué, 11 October 1914.

THE SIGNIFICANCE OF THE FLYING ARTILLERY OBSERVER TO THE INFANTRY.
[Die Bedeutung des fliegenden Artilleriebeobachters für die Infanterie.] Captain Rechlin

The following advantages may be considered:

(1) In the attack against an organized position prepared for defense:
Greater flexibility of fire.
Quicker initiation of counterbattery fires against hostile artillery previously unobserved.

Replacing map controlled fire against the hostile artillery by observed fire, resulting in: Shortening of the time for ranging; Increased possibility of effect at the target; Economy in ammunition expenditure; Economy in counterbattery performance; Decreasing the hazard of disclosing our own artillery positions prematurely, thus extending the time when they may be employed decisively; Eliminating the necessity of a long artillery duel, thereby withholding the secret of our strength for a longer period of time.

(2) More rapid initiation of counterbattery missions during meeting engagements.

(3) Early initiation of counterbattery fires in warding off an attack.

16 June 1939

WAR AND PEACETIME EXPERIENCES WITH MOTORCYCLE COMPANIES.
[Kriegs- und Friedenserfahrungen mit Radfahrerkompanien.]

CONFIDENCE.
[Vertrauen.]

Obedience is the basic principle of the armed forces, confidence the basic principle of obedience; these are the duties of the German soldier.

Confidence creates obedience, but obedience alone will not create confidence.

The satisfaction of assuming responsibility is the foundation of confidence.

Superior knowledge and ability are additional foundations of confidence.

Other paths to confidence are understanding of and consideration for the sensibilities and thoughts of subordinates, unhesitating solicitude in material as well as spiritual affairs.

AERIAL ATTACKS AGAINST TROOPS AND DEFENSE AGAINST THEM.
[Fliegerangriffe auf Truppen und ihre Abwehr.] Lieut. Colonel Greiner

Aerial threats will not always occur with the same impetus and effectiveness.

Night attacks will seldom do much harm if the necessary basic precautions are carried out.

Attacks against resting troops, against loading and unloading must be combatted with a well organized and alert system of observation and fire, capable of warding off sharp attacks with frontal fire.

Attacks against marching columns moving on roads or by rail find the troops in a situation which is most difficult to defend. If such movements are performed during daylight, their security will demand a great mass of defending weapons, especially antiaircraft artillery from GHQ reserve and aviation squadrons. This is a matter for the high command. The destruction of railway lines is more effective than that of roads. Except in the mountains, the inconvenience of highway destruction can be obviated more or less by detouring.

Aerial machine-gun attacks actually have little more than a moral effect. The shots do not strike in one pattern simultaneously; they form a series of successive impacts spaced about every twenty-three feet. Even under favorable conditions (long, straight roads), due to the swaying of the plane, inaccurate firing results. The fragmentary effect of aerial bombs is sidewise and is less than that of the grenade. Accuracy depends on the skill in releasing the bomb.

INCREASING THE EFFECTIVENESS OF THE INFANTRY ATTACK BY MEANS OF ORGANIZATION, MATÉRIEL AND TRAINING.
[Steigerung der Angriffskraft der Infanterie durch Organisation, Bewaffnung und Ausbildung.] Section III

This section stresses the effectiveness of tank participation in the infantry attack.

23 June 1939

RELIEF DURING THE NIGHT.
[Ablösung bei Nacht.] Lieut. General Boltze

In addition to training in night marching, practice in the relief of troops and their regrouping in the battle position, breaking off the fight and withdrawing during the night, is of paramount importance.

THOUGHTS ON MOTORIZATION THROUGHOUT THE WORLD.
["Motorisierte" Gedankensplitter aus aller Welt.] Lieut. Colonel Braun

The Holy Street of China.—This title refers to the route from Lashio in Burma (terminal of the Rangoon — Mandalay Railway) to Yunnan in South China. The article is a discussion of the employment and development of this highway as an important artery in the Chinese system of supply.

ENGLAND'S ANTIAIRCRAFT DEFENSE.
[Englands Verteidigung gegen Luftangriffe.]

The article is based on a news item appearing in the London "Daily Telegraph" of 1 May 1939 and a distance chart from the western German flying fields to the principal English cities.

THE EMPLOYMENT OF THE MORTAR PLATOON IN THE RIFLE AND CAVALRY REGIMENTS AND THE MOTORCYCLE BATTALIONS.
[Der Einsatz des schweren Granatwerferzuges bei den Schützenregimentern, Kavallerie-Schützenregimentern und den Kradschützenbataillonen.] Major v.Manteuffel

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AGAIN, ANTITANK DEFENSE DURING THE ATTACK.
[Nochmals: Panzerabwehr beim Angriff.] Dr. Wim Brandt

Since writing this article, Dr. Brandt participated in the Polish Campaign. In this discussion he stipulates the following antitank measures:

(1) The first antitank guns should follow the forward infantry elements at a distance not exceeding 550 yards.

(2) The guns must be serviced by detachments of ten men each.

(3) If this personnel cannot be secured from the battalions they must be furnished by the 14th company.

(4) Two guns to each assault battalion should suffice.

(5) The other platoons follow in channels not covered by hostile fire.

(6) The two guns accompanying each assault battalion to be controlled by a platoon leader, who is to be replaced in the rearward element by his second-in-command.

1 July 1939

SUPPLY AND OPERATIONS PLAN.
[Nachschub und Operationsplan.] (I) Colonel von Mantey

Colonel von Mantey presents a short historical sketch dealing with the dependent relationship of supply to operations. The main part of the article discusses the supply system of the operations which culminated in the First Battle of the Marne, 1914.

THE FIRE FIGHT OF THE RIFLE COMPANY IN THE ATTACK AND THE DEFENSE.
[Der Feuerkampf der Schützenkompanie beim Angriff und in der Verteidigung.] Lieutenant Sachsenheimer

The attack is divided into five phases: The approach march; Deployment up to 875 yards; Up to 400 yards; To 100 yards; Penetration.

The defense covers the disposition of the heavy weapons and the coordination of fires.

BRITISH TRANSPORTATION ON THE WESTERN FRONT 1914-1918.
[Das britische Transportwesen an der Westfront 1914-1918.] Dr. Kühn

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GAS DEFENSE IN THE RUSSIAN ARMY.
[Gasschutz im Sowjetheer.]

7 July 1939

THE WESTWALL.
[Der Westwall.] Lieut. General Jacob

A discussion of the progress of construction on the Westwall from 28 May 1938 to 6 October 1938. The number of men occupied in working on this project during this period extended from 35,000 to 342,000.

SUPPLY AND OPERATIONS PLAN.
[Nachschub und Operationsplan.] (II) Colonel v.Mantey

Colonel von Mantey concludes his study of the supply problem as it conformed generally to the Schlieffen Plan.

QUESTIONS ON RATIONING IN PEACE AND IN WAR.
[Einige Verpflegungsfragen aus Frieden und Krieg.] Lieut. General Marx

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THE FLYING ARTILLERY OBSERVER.
[Der fliegende Artilleriebeobachter.]

A discussion of the principle of allocating aircraft to the artillery.

REPLACEMENT OF NONCOMMISSIONED OFFICERS AND THE ENLISTMENT OF VOLUNTEERS.
[Unteroffizierersatz und Freiwilligeneinstellung.] Lieut. Colonel Walzer

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POLISH VIEWS ON THE MEETING ENGAGEMENT.
[Polnische Anschauungen über das Begegnungsgefecht.] Major General Zölss

An infantry division, marching during daytime and anticipating a meeting engagement must advance in several columns in which the battalions should be echeloned at greater distances. It must be capable of rapid deployment both forward and in breadth. It is important that the reconnaissance detachment render prompt reports. Marching on the poor roads should not be neglected.

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THE RED AIR FORCE IN 1939.
[Die Rote Luftflotte im Jahre 1939.]
It is believed that Russia has about 8,200 airplanes.

14 July 1939

ONCE MORE: PORTRAYING THE MODERN GENERAL.
[Nochmals: "Das Bild des modernen Feldherrn."] (I) General Wetzell

General Wetzell reopens his debate with Colonel Foerster on the issue of the origin of the modern military commander. Previous abstracts and digests on this controversial subject by both authors appeared in Nos. 75 and 76 of the Command and General Staff School Military Review. This portion concerns General Wetzell's conception of the origin of the modern general, and a reintroduction of Moltke, the elder, as the conductor of the ideal, strategically planned battle.

THE HISTORICAL ILLUSTRATIONS OF BATTLE EXPERIENCE AS AN AID TO TRAINING.
[Das kriegsgeschichtliche Beispiel als Mittel der Erziehung.] Lieut. Colonel Schmidt

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THE MEDICAL SERVICE AND ITS EMPLOYMENT IN WAR.
[Die Sanitätsdienste und ihr Einsatz im Kriege.] (I) General Kittel

In the solution of its problems the medical service is concerned generally with: Care of the sick and wounded; Their evacuation; Replacement of expended medical supplies; Preservation of health and the prevention of disease.

THE COOPERATION OF THE RIFLE COMPANY WITH INFANTRY AND ARTILLERY HEAVY WEAPONS.
[Das Zusammenwirken der Schützenkompanie mit den schweren Waffen der Infanterie und der Artillerie.] Lieutenant Sachsenheimer

Infantry training recognizes two basic principles: (1) Developing and facilitating the progress of the attack; (2) A knowledge of and training in the methods of the fire fight.

The author presents the means through which the cooperation of all weapons may be secured:

A. Control by means of orders.
B. Liaison with the heavy weapons and the artillery.
   (1) Measures to secure and maintain liaison.
   (2) Liaison by means of the artillery liaison officer.
   (3) Direct communication with the observation posts through the infantry subordinate leaders.
   (4) Special means of communication (signal lights, alarms, flags).
C. Initiative of all weapons.
D. Constant observation of the battlefield.

THE SUPPLY OF RATIONS.
[Der Verpflegungsnachschub.] Dr. Bernklau

ENGLISH ASPECTS ON ANTIAIRCRAFT DEFENSE OF THE THEATER OF OPERATIONS.
[Flakschutz des Operationsgebiets nach englischen Ansichten.] Colonel v.Xylander

Based on the article by Brigadier General Pargitter in the "Journal of the Royal Artillery," April 1939.

MILITARY HISTORY. EXAMPLE NO. 1: MT. KOLOVRAT.
[Truppen-Kriegsgeschichte. Beispiel 1: Mt. Kolovrat.] Part I

Mountain warfare. Attack against fortified positions in the mountains.

21 July 1939

ONCE MORE: PORTRAYING THE MODERN GENERAL.
[Nochmals: "Das Bild des modernen Feldherrn."] (II) General Wetzell

The author continues his debate by a further development of the subject of the significance of railroads in past and present wars, and by a discussion of Moltke as an observer.

COOPERATION BETWEEN INFANTRY AND ARTILLERY.
[Zusammenwirken von Infanterie und Artillerie.] Lieut. Colonel Walzer

The infantry regiment of today is an organization of troops utilizing a combination of weapons and requiring its own artillery for the accomplishment of its missions.

The present infantry cannon is a compromise between modern requirements and the Versailles Treaty. The infantry regiment requires an artillery battalion of three batteries of four guns each. The specifications of the gun should be:

Weight of gun in firing position not to exceed 2,200 pounds.
Silhouette not in excess of 3 feet 3 inches.
Caliber: 75-mm.
Range: 8,750 to 9,850 yards.
Four charges
Split trail
Draft: team of six
Armor-piercing shell.

The organic assignment of this artillery to the infantry regiment may be made either in peace or at the outbreak of war, preferably in peace. The present infantry heavy weapons company, being superfluous, may then be used as a basis on which to organize the artillery battalion.

THE THEORETICAL TRAINING OF INACTIVE OFFICERS.
[Die theoretische Ausbildung der Offiziere d.B.] Lieut. General Graf

The author presents recommendations for the training of the three types of inactive German army officers: the d.B. (des Beurlaubtenstandes) officers, who are regular officers temporarily inactive on extended leave; the z.V. (zur Verfügung) officers, who are regular officers on an inactive status at partial pay; and the a.D. (ausser Dienst) officers, who are retired officers of the regular army. The article stresses mainly the training of the d.B. type, as in the next war it is this type which will form the great majority of officers serving in duties ranging from platoon leaders to battalion commanders, and as adjutants and aides.

ITALIAN VIEWS ON THE MISSIONS AND ORGANIZATION OF MODERN MECHANIZED UNITS.
[Italienische Anschauungen über Aufgaben und Gliederung neuzeitlicher Panzerverbände.] Lieut. Colonel Braun

Colonel Braun believes that the Italian views on this subject are instructive as well as interesting, especially so because they do not agree entirely with those of the German and French.

The mechanization of the army is only possible to a very limited extent. The fantastic attitude, which anticipated the end of marching on foot, is dead.

Mechanized units will be used more as a maneuvering force, rather than as a means in effecting a breakthrough.

The Italian mechanized division is not as strongly organized as the French "Light Mechanized Division." It is lighter than the British "Armoured Mechanized Division" with its 480 tanks and 48 caliber 87-mm cannons; also lighter than the German "Panzer Division" of approximately 400 tanks and 3 battalions of 105-mm artillery. It is intended to keep this force mobile, not to be impeded by too much impedimenta.

THE MEDICAL SERVICE AND ITS EMPLOYMENT IN WAR.
[Die Sanitätsdienste und ihr Einsatz im Kriege.] (II) General Kittel

The second installment of this article deals mainly with the evacuation of the sick and wounded.

MILITARY HISTORY. EXAMPLE NO. 1: MT. KOLOVRAT.
[Truppen-Kriegsgeschichte. Beispiel 1: Mt. Kolovrat.] Part II

28 July 1939

WAR EXPERIENCES AS A PRACTICAL AID TO AERIAL RECONNAISSANCE.
[Kriegserfahrungen für die praktische Durchführung der Luftaufklärung.] Lieut. Colonel v.Loewenstern

There is no arm whose training entails as much difficulty as that of aviation. In but few instances can maneuvers and exercises simulate actual war conditions for aviation personnel. More than any other weapon, aircraft, at the outset of war, is faced with the problem of innovation. For that reason the battle experiences of veteran fliers are and always will be of inestimable value to the training of young aviation commanders and their personnel. The experiences gained in the wars of today, in combination with those still to be gained in the great war to come, are of great instructive value.

ONCE MORE: PORTRAYING THE MODERN GENERAL.
[Nochmals: "Das Bild des modernen Feldherrn."] (III) General Wetzell

General Wetzell concludes his reopened argument against the rebuttal of Colonel Foerster. In this installment he develops in greater detail the conception of the military commander who is bound to his desk, and the relationship between the head of the state and the commander in chief of the armed forces.

It is the head of the state who is solely responsible for the conduct of the war. Still he must have a military commander in chief who can prepare the plans of war and force them into execution, and thus relieve the former of the responsibility of achieving victory with the instruments of war.

RENNENKAMPF AS THE COMMANDER OF THE FIRST ARMY IN THE FALL OF 1914.

[Rennenkampf als Führer der 1. Armee im Herbst 1914.] Colonel Aschenbrandt

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PLAN OF FIRE.
[Der Feuerplan.] Colonel Friemel

The author presents an interpretation of the German regulations concerning the coordination of infantry and artillery fires.

4 August 1939

COMBAT UNITS REQUIRED TO EFFECT OBSTACLES.
[Sperren und dazu notwendige Kampfverbände.]

INCREASING THE EFFECTIVENESS OF THE INFANTRY ATTACK BY MEANS OF ORGANIZATION, MATÉRIEL AND TRAINING.
[Steigerung der Angriffskraft der Infanterie durch Organisation, Bewaffnung und Ausrüstung.] (IV)

This section concludes the article and presents recommendations for the reorganization of the infantry battalion, regiment, division and the army corps.

"LIMITATIONS DISCLOSE THE MASTER."
["In der Beschränkung zeigt sich erst der Meister!"] (I)

A study of the strategical and tactical employment of mechanized units.

ORGANIZATION OF THE REGIMENTAL COMMAND POST AND THE MISSION OF ITS PERSONNEL.
[Organisation des Regimentsgefechtsstandes und Tätigkeits seiner Organe.]

FRENCH VIEWS ON MOTORIZATION.
[Französische Bedenken gegen die Motorisierung.]

ORGANIZATION AND MORALE OF THE RED AIR FORCE.
[Organisation und Geist der roten Luftflotte.] A. Agricola

11 August 1939

THE RECONNAISSANCE DETACHMENT MOTORIZED WHOLLY OR IN PART.
[Die Aufklärungsabteilung mot. und tmot.] Lieut. Colonel Balck

The article presents various means for securing mobility of the detachment and the means it may adopt to secure information.

THE CAPITULATION AT NISIB — THE BITTER END OF MOLTKE'S ACTIVITY IN TURKEY.
[Die Niederlage von Nisib — das bittere Ende der Tätigkeit Moltkes in der Türkei.] Major Niemann

The author reflects the attitude of Moltke when he first stepped on Turkish soil in 1835. A brief account of the Turkish defeat in 1839 is presented. Moltke was the military advisor to the Turkish Army. His inexperience, added to the difficulty of advising an incompetent command, forms the basis of the author's apology.

"LIMITATIONS DISCLOSE THE MASTER."
["In der Beschränkung zeigt sich erst der Meister!"] (II)

Concluding article of a study of the strategical and tactical employment of mechanized units.

EMPLOYMENT OF ITALIAN FLIERS IN SPAIN.
[Einsatz von italienischen Fliegern in Spanien.]

Based on articles which appeared in the Italian newspapers, this account presents a description of the aerial attack against the Harbor of Valencia.

THE CONFLICT IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] Colonel v.Xylander

An account of the operations which accentuated the friction between Japan and Soviet Russia.

18 August 1939

THE BATTLE OF TANNENBERG, 1914 AS EVALUATED FROM THE STANDPOINT OF MILITARY HISTORY, TACTICS AND EDUCATION.
[Die Schlacht bei Tannenberg 1914 in kriegsgeschichtlicher, taktischer und erzieherischer Auswerkung.] Lieut. Colonel Panath

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THOUGHTS ON INFANTRY TRAINING.
[Gedanken zur Ausbildung der Infanterie.]

This article covers the spirit of the offensive, war experiences, infantry requirements, the cooperation of all weapons, training methods, and marksmanship.

TRAINING THE REGULAR ARMY OFFICER WHO IS ON A TEMPORARY INACTIVE STATUS.
[Die Ausbildung des Offiziers des Beurlaubtenstandes.] Lieutenant v.Wanger

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THE GREAT MANEUVER AND THE ARMY OF THE PO.
[Die grossen Manöver und die Po-Armee.] (I) Lieutenant Himpe

25 August 1939

THE GERMAN INFANTRY, 1914.
[Die deutsche Infanterie 1914.] Major General Metz

In August 1914 there were mobilized: 218 infantry regiments consisting of 654 battalions and 219 machine-gun companies, 113 reserve infantry regiments consisting of 332 battalions and 88 machine-gun companies, 75 Landwehr infantry regiments consisting of 219 battalions. The regular army and the reserves comprised 29,314 officers and 1,118,774 men, and the Landwehr about 200,000 officers and men. The total number of the infantry comprised 65 per cent of the army.

AERIAL OPERATIONS OF THE GERMAN EIGHTH ARMY BEFORE AND DURING THE BATTLE OF TANNENBERG.
[Die Tätigkeit der Flieger der deutschen 8. Armee vor und während der Schlacht bei Tannenberg.] Lieut. Colonel v.Loewenstern

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THE MODERN ARTILLERY ATTACK.
[Der neuzeitliche Artillerieangriff.] (I) General v.Eimannsberger

This is the first installment of an article which presents the author's conception of this subject, which is developed by means of charts under the following titles:

(1) Composition and organization of the artillery of the I Army Corps.
(2) Plan of fire for the artillery preparation.
(3) Ammunition expenditures and allotments for the preparation.
(4) Ammunition expenditures for the rolling barrage.
(5) Ammunition expenditures of the corps artillery during the attack.
(6) Recapitulation according to the plan of fire.

THOUGHTS ON MOTORIZATION THROUGHOUT THE WORLD.
["Motorisierte" Gedankensplitter aus aller Welt.] Lieut. Colonel Braun

(1) Thoughts on aviation tactics in view of the new Dardanelles situation.

(2) The problem of motorization on the ground; comparison of the modern British infantry battalion with that of the German unit at war strength.

THEORETICAL TRAINING OF THE D.B. OFFICERS.
[Die theoretische Ausbildung der Offiziere d.B.] (I)

A line officer offers his recommendations for the training of the inactive officer on extended leave.

THE CONFLICT IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] Colonel v.Xylander

The author covers the progress of the isolation of South China, the friction with the white powers and concludes with a summary of the situation existing at the opening of the third year of the war.

1 September 1939

THE GERMAN FIELD ARTILLERY, 1914.
[Die deutsche Feldartillerie 1914.] Lieut. General Marx

General Marx outlines the development of the Prussian and German field artillery from 1866 to the opening of the war in 1914. He compares the German matériel and organization with that of the French in 1914 and considers the German superior. The quality of the officer and enlisted personnel is appraised and means of replacements discussed. Criticisms are presented and refuted. The article concludes with an appreciation of the value of artillery support to the infantry successes of 1914.

THE GREAT MANEUVER OF THE ARMY OF THE PO.
[Die grossen Manöver der Po-Armee.] (II) Lieutenant Himpe

The author reports on his observations of the Italian maneuver from 1–5 August 1939.

THE MODERN ARTILLERY ATTACK.
[Der neuzeitliche Artillerieangriff.] (II) General v.Eimannsberger

In the second part of this article the author concludes his subject under the following sub-titles: (1) Enemy situation; (2) Strength of the attacking artillery; (3) Plan of fire for the artillery preparation preceding the attack; (4) Plan of fire for the conduct of the attack; (5) Concentration of forces.

SIMULATION OF THE EFFECT OF HOSTILE FIRE DURING PEACETIME EXERCISES.
[Die Darstellung der feindlichen Feuerwirkung bei Friedensübungen.] Lieut. General Graf

General Graf presents a solution of this problem in his recommendations of a highly developed system of umpire control augmented by various signalling devices.

THEORETICAL TRAINING OF THE D.B. OFFICERS.
[Die theoretische Ausbildung der Offiziere d.B.] (II)

This is another view contributing to the variety of methods previously discussed under this subject. The author presents a plan for a six-week's schooling of inactive officers in this classification.

AUSTRALIAN DEFENSE MEASURES.
[Aufrüstungsmassnahmen Australiens.]

8 September 1939

THE DEFENSIVE WAR OF 1939.
[Der Abwehrkrieg von 1939.] General Wetzell

General Wetzell writes his prelude to the Polish War and the opening of the war against England and France, which he considers a conflict that must be waged in order to guarantee the existence of Germany.

THE GREAT MANEUVER OF THE ARMY OF THE PO.
[Die grossen Manöver der Po-Armee.] (III) Lieutenant Himpe

The author concludes his observations on the Italian maneuver over the period 5-9 August 1939.

DEFINITE RESPONSIBILITY.
[Trennung der Gewalten.]

The translation of this title is made somewhat freely. If it were translated more literally, such as "Divided Authority," its meaning would not be reconciled immediately with the author's intentions in making a plea to establish a sense of responsibility and pride in the motor vehicle operator.

The author contends that the motor vehicle operator should be trained as a specialist, qualified in the useful application of what is essentially a weapon which, when properly handled, is an auxiliary to other weapons and a piece of equipment upon which the life and limb of combat personnel is dependent.

This sense of responsibility and specialized training should not be interpreted as depriving the operator from acquiring those qualities which identify the disciplined soldier. In fact, a well-trained and disciplined soldier is one who is qualified in carrying out his assigned missions successfully. More precise discipline may be secured by requiring the operator to undergo basic military training, or drill, for one or two hours a week.

POLISH VIEWS ON MECHANIZED AND MOTORIZED UNITS.
[Polnische Ansicht über mechanisierte und motorisierte Truppenverbände.] Major General Zölss

15 September 1939

GERMANY'S DEFENSIVE WAR OF 1939. EVENTS IN THE EAST FROM 1 TO 9 SEPTEMBER.
[Deutschlands Abwehrkrieg von 1939. 1. Die Ereignisse im Osten vom 1. bis 9. September.] (I) Major v.Zeska

This article furnished a portion of the bibliography which was used as source material for the account of "The Collapse of Poland," Command and General Staff School Military Review, December 1939, page 25.

THE FUNDAMENTAL PROBLEMS OF CAVALRY.
[Kernprobleme der Kavallerie.] Major Van Nes

From west to east, the armies of the continent, in addition to their strong, motorized units, have retained their cavalry.

Today, regardless of terrain or season, cavalry must have considerably greater mobility than the infantry divisions. It must be so flexible that, independent of supply, it can operate in any terrain, excepting mountains, without difficulty. It must be powerful enough to overcome resistance with its own resources.

The cavalry of the old army, trained mainly for fighting on horseback, could ride at the gallop in large units for an extended period of time, an art which no longer exists. The long gallop executed by units larger than the troop must be learned and mastered and again elevated to the level of an honorable accomplishment. It should be the means of bringing fire-power quickly into the zone of action. This can be accomplished only by the persevering efforts of the troop commander in personally leading his troop in its training exercises.

Cavalry must be so equipped that it can dispense with field kitchens and baggage trains for several days and transport everything by means of pack animals. Gasoline stoves have been in use for a long time by Alpine troops, who are greatly concerned with the problem of light baggage and the independence of every man from vehicles and pack animals. For larger kettles the gasoline stoves (that burn gasoline like blow-torches and only operate with gasoline) must naturally be larger. The fact that they are necessarily heavier than solidified alcohol is compensated for by the smaller amount of fuel required.

No one doubts that in 1914 our cavalry entered the war with superior smartness and a devil-may-care spirit, which it preserved up to the great battles of the dismounted cavalry division in 1918. In spite of that they were denied the fruits of victory because they lacked fighting power. A dragoon or uhlan regiment was known merely as a regiment. They entered into combat with the officers available and "the riflemen of the regiment," who at best were some 200 carabineers. The rest remained with their horses and were used as patrols and for the purpose of security. Such a regiment had not even the fighting power of a battalion.

Today we are better organized and armed for battle. In spite of that the cavalry is always called upon to employ more forces than the infantry for patrolling and security, on account of their peculiar method of employment and the necessity for horse-holders.

An increase in the number of weapons — at present automatic weapons — must compensate for the deficiency in numbers. The number of machine guns with which a rifle company is equipped will not suffice for a cavalry troop, because after the men have been detached for the purpose of patrolling and security it must have at least the same fire power for the attack as the rifle company. So if the rifle company has nine light machine guns, the cavalry troop must have eighteen — two machine guns to each section. The same applies to the heavy machine guns, but we must be careful not to increase the number of vehicles. They obstruct speed and mobility. Given such an organization, troop commanders who have covered long marches, suffered losses and completed important patrol missions, will still have an effective fighting force left.

Then there is this question of Eastern and Western troops. The highways and climatic conditions of the west favor motorization; its congested population restricts the use of cavalry. In the east conditions are just the opposite. Perhaps it would be appropriate to strip the west of its cavalry, place it in the east from the Lithuanian border across East Prussia, Pommerania, the Courland, and Silesia to the deep southeastern portion of Greater Germany, and reorganize it along with motorized troops as a streamlined cavalry unit, an organization that would be ready for any emergency. Radical, but quite expedient.

THE INFANTRY AND ITS ARTILLERY.
[Die Infanterie und "ihre" Artillerie.] Major v.Köller

Perhaps the experiences of the World War will serve to support the recommendations of Lieutenant Colonel Walzer who, in the 21 July 1939 issue of "Militär-Wochenblatt," discussed the importance of infantry artillery. But even though they do not, it is still true that direct cohesion between the two arms will prove more successful, whether applied in peace or at the opening of hostilities, than a system of cooperative support based on an indiscriminate attachment.

THE BRITISH NATIONAL DEFENSE COMMITTEE.
[Der britische Reichsverteidigungsausschuss.] Colonel v.Xylander

Cabinet:

National Defense Committee

1. Sub-committee on strategy and operations
   - *a.* Chief of Staff
     - (1) Operations section
     - (2) Intelligence section
2. Sub-committee on organization for war
   - *a.* Section on overseas defense
   - *b.* Section on civilian defense
     Sub-section on technical industries
   - *c.* Section on home defense
   - *d.* Joint section on overseas and home defense
   - *e.* Section of censorship
   - *f.* Section on war measures
3. Sub-committee on organized labor
4. Sub-committee on procurements
   - *a.* Chief section on procurements
   - *b.* Section on food-stuffs
   - *c.* Section on oil
5. Sub-committee on miscellaneous matters
   Divers sections on research and experiment.

SOVIET RUSSIAN VIEWS ON ANTIAIRCRAFT DEFENSE AND THE DEFENSE OF RAILROADS IN THE THEATER OF OPERATIONS BY MEANS OF AVIATION.
[Fliegerabwehr und Luftschutz der Eisenbahnen auf dem Kriegsschauplatz nach sowjet-russischen Anschauungen.] Colonel Nagel

The organization of antiaircraft defense and the protection of railway depots, railway lines and transport trains by means of aviation, as well as providing the means of replacement and building up the technical organization of railway defense must be prearranged in peacetime.

22 September 1939

GERMANY'S DEFENSIVE WAR OF 1939. 2. THE EVENTS IN THE EAST FROM 9 TO 16 SEPTEMBER.
[Deutschlands Abwehrkrieg von 1939. 2. Die Ereignisse im Osten vom. 9. bis 16. September.] (II)

WHAT IS NOT APPLICABLE IN WAR?
[Was fällt im Kriege ab?] Lieut. General Marx

The author presents a study of the application of theory to the conduct of war, based on the oft-quoted remark, "Gentlemen, that is theoretically correct, but in time of war it is bound to be scrapped."

ANTITANK DEFENSE IN THE ATTACK.
[Panzerabwehr im Angriff.]

In the attack antitank defense implies the use of cover and the maintenance of constant observation in preparation for our own attack. Every soldier, regardless of arm, knows how to appreciate the difficulties involved in carrying out the missions of such observation. Antitank defense is charged with the additional task of securing such a high degree of flexibility of fire that, in view of the limited field of the individual weapon, a unified command seems almost impossible.

THE DEVELOPMENT AND TRAINING OF SUBORDINATE COMMANDERS OF INFANTRY AND MECHANIZED UNITS IN FRANCE.
[Ergänzung und Ausbildung der Unterführer der Infanterie und Panzertruppen in Frankreich.] Colonel v.Xylander

This article discusses the French system for the developing and training of personnel for subordinate commanders under the various classifications.

1 October 1939

GERMANY'S DEFENSIVE WAR OF 1939. 3. THE EVENTS IN POLAND FROM 17 TO 24 SEPTEMBER.
[Deutschlands Abwehrkrieg von 1939. 3. Die Ereignisse in Polen vom 17. bis 24. September.] (III)

THEN AND NOW.
[Einst und Jetzt.] General Wetzell

The author compares and contrasts the situations which affected the outcome of Germany's wars, past and present, with special emphasis on the Polish Campaign of 1939.

WITH NEGROES AND 70-TON TANKS AGAINST THE WESTWALL?
[Mit Negern und 70-Tonnen-Tanks gegen den Westwall?] Lieut. Colonel Braun

Due to her low birth rate France must depend to a large extent on the employment of colonial troops and improvements in mechanization.

During the World War 1914-1918, France employed colonial forces in the approximate numbers:

French East Africa	150,000
Madagascar	40,000
French West Indies	36,000
Indo-China	40,000
Somaliland	3,000

OBITUARY: COLONEL GENERAL BARONET VON FRITSCH.
[Generaloberst Freiherr von Fritsch.]

Who fell in Poland, 22 September 1939.

6 October 1939

GERMANY'S DEFENSIVE WAR OF 1939. 4. THE WAR AGAINST ENGLAND FROM 3 TO 30 SEPTEMBER.
[Deutschlands Abwehrkrieg von 1939. 4. Der Kampf gegen England vom 3. bis 30. September.] (IV)

THE LEAP FROM KNOWLEDGE TO POWER.
[Der Sprung vom Wissen zum Können.] Lieut. General Marx

General Marx presents a discussion on certain matters of military knowledge, character, technique and tactics, fundamentals which he considers necessary as the basic requirement for success in war. Among these he discusses discipline, the development of weapons, the use of cavalry and artillery, open warfare and the double envelopment.

IS SPECIAL TRAINING NECESSARY IN THE WAR OF PERMANENT FORTIFICATIONS?
[Ist eine besondere Schulung für den Festungskampf erforderlich?] Major General Klingbeil

(This article was written before the outbreak of hostilities.)

With reference to the Maginot Line and the Westwall the author stresses the importance of the defender's knowledge of his own defensive system. In order to carry on an operation of decisive effect one party must first penetrate the defensive system of the other.

BRITISH MEASURES PRIOR TO GENERAL MOBILIZATION.
[Britische Massnahmen vor der Gesamtmobilmachung.] Colonel v.Xylander

13 October 1939

GERMANY'S DEFENSIVE WAR OF 1939. 5. THE WAR AGAINST FRANCE FROM 3 TO 30 SEPTEMBER.
[Deutschlands Abwehrkrieg von 1939. 5. Der Kampf gegen Frankreich vom 3. bis 30. September.] (V)

COOPERATION BETWEEN ARTILLERY AND INFANTRY IN THE DEFENSE UP TO THE WITHDRAWAL TO THE MAIN LINE OF RESISTANCE.
[Zusammenarbeit von Artillerie und Infanterie in der Verteidigung bis zur Zurücknahme in das Hauptkampffeld.] Major General Tittel

See digest, page 60.

SOVIET RUSSIAN VIEWS ON THE COOPERATION BETWEEN ANTIAIRCRAFT ARTILLERY AND PURSUIT AVIATION.
[Sowjet-russische Ansichten über das Zusammenwirken zwischen Flakartillerie und Jagdfliegern.] Colonel Nagel

The most primitive form of cooperation is to divide the aerial sectors between the antiaircraft artillery and the pursuit planes, each carrying out his own mission in his own sector or zone of action.

Another method is to divide the area to be covered into zones and assign both antiaircraft artillery and pursuit planes to a common zone, thus effecting a more direct system of cooperation.

THE CONFLICT IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] Colonel v.Xylander

Eastern Asia and the European conflict.

20 October 1939

GERMANY'S DEFENSIVE WAR OF 1939. 7. THE WAR AGAINST ENGLAND FROM 1 TO 15 OCTOBER.
[Deutschlands Abwehrkrieg von 1939. 7. Der Kampf gegen England vom 1. bis 15. Oktober.] (VII)

FIRE AND MOVEMENT IN THE PENETRATION.
[Bewegung und Waffenwirkung beim Durchbruch.] Captain Meier-Welcker
(Written before the outbreak of hostilties.)

There can be no doubt today that the winning back of the freedom of action peculiar to open warfare is a serious problem. Any attempt to regain it must bear in mind that the principal objective is the element of movement. From the strategic point of view the annihilation of the hostile forces is only possible through movement.

Every means of mobility, on the ground as well as in the air, must cooperate. The breakthrough must be effected by resorting to a superior form of rapidity of movement combined with all the forces and matériel immediately available.

MILITARY ENGINEER

March-April 1940

AN INDUSTRIALIST LOOKS AT WAR. Raoul E. Desvernine
MODERN UNITED STATES CAVALRY. Lieut. Colonel Bradford
ACTUAL ECONOMIC RESULTS OF JAPAN IN MANCHURIA. Colonel Hall
UNITED STATES HIGHWAYS IN PEACE AND WAR. Thomas P. Henry
THE POLISH CAMPAIGN, 1939 — THE OTHER SIDE. Lieut. Colonel de Watteville, British Army
GERMAN ENGINEERS IN THE POLISH CAMPAIGN. Major General Klingbeil

MILITARY SURGEON

March 1940

MARCHING EFFICIENCY. Lieut. Colonel Steindler

NAVAL INSTITUTE PROCEEDINGS

March 1940

SHIPS FOR WHAT? THE MERCHANT MARINE AND NATIONAL DEFENSE. Harlan Trott
THE INFLUENCE OF SCURVY UPON MARITIME HISTORY. Commander Roddis
ISLAND BULWARKS. Colonel C. I. Crockett, U. S. Army
THE MONITOR-MERRIMAC LEGEND. Alan C. Smith
SOME FACTS ABOUT FISHER AND HIS WARSHIPS. Admiral Sir R. Bacon

April 1940

A THREAT AND AN OPPORTUNITY. (Prize Essay, 1940) Lieutenant Percival, U. S. Navy (Retired)
MODERN AIR AND MARINE NAVIGATION. Lieut. Commander Weems, U. S. Navy (Retired)
HISTORIC SHIPS OF THE NAVY: POWHATAN. R. T. Neeser

THE ROYAL ROAD ACROSS THE PACIFIC. Lieutenant D. E. Collins, U. S. Naval Reserve

THE HAWAIIAN NAVY AND AN INTERNATIONAL INCIDENT. Rear Admiral Farenholt, U. S. Navy (Retired)

THE BATTLE OF THE VIRGINIA CAPES, 1781. Richmond Weed

THE NAVAL CAREER OF JAMES FENIMORE COOPER. L. H. Bolander

DIE PANZERTRUPPE (Germany)

BY MAJOR WM. H. SPEIDEL, Infantry

November 1939

GENERALS OF THE MECHANIZED FORCES WHO WERE AWARDED THE IRON CROSS OF THE CHEVALIER'S CLASS.
[Generäle der schnellen Truppen mit dem Ritterkreuz.]

This article gives an account of the records of achievement of the following generals who were awarded the Ritterkreuz of the Iron Cross:

General of Mechanized Forces Guderian, commanding general of a mechanized corps and inspector of the mechanized forces.

General of Cavalry Hoepner, commanding general of a mechanized corps.

Lieutenant General Reinhardt, commander of a mechanized division.

OUR EXPERIENCES IN THE POLISH CAMPAIGN.
[Was wir im feldzug gegen Polen erlebten.]

Staff Sergeant Ziegler discusses his personal experiences in the operations south of Warsaw. Captain Schneider tells how his unit annihilated an enemy supply train and how they engaged in a fight with Polish tanks. Heinz Fleischer, a noncommissioned officer in an antitank detachment, tells how he won his iron cross.

TANKS, SCOUT CARS AND DEFENSE AGAINST THEM.
[Panzerkampfwagen — Panzerspähwagen und die Abwehr dagegen.]

The author discusses the latest developments in foreign armies, particularly United States of America, Canada, England, Russia, France, Switzerland and Japan.

UNIFORM METHOD FOR DETERMINING FUEL REQUIREMENTS.
[Einheitliches Verfahren zur Ermittlung des Kraftstoffverbrauchs.]

December 1939

EXPERIENCES IN THE POLISH CAMPAIGN.
[Erlebnisse im feldzug gegen Polen.]

A mounted reconnaissance detachment defeats an infantry battalion and captures three batteries. Tanks engage in battle.

TANKS, SCOUT CARS AND DEFENSE AGAINST THEM.
[Panzerkampfwagen — Panzerspähwagen und die Abwehr dagegen.]

This article is a continuation of the discussion of the latest developments in foreign armies.

PRACTICAL SUGGESTIONS ON TOWING.
[Abschleppwinke aus der Praxis.]

A number of illustrations clarify the explanation of various methods of using the towing cable, loading by means of ramps, and arighting overturned vehicles.

OPERATING MOTOR VEHICLES IN WINTER.
[Winterbetrieb der Kfz.] Captain Beer

The author covers the following points in his discussion of certain important precautions to be taken during cold weather: (1) Winter covering for radiators. (2) Warming up by running the motor not to exceed five minutes. (3) Starting difficulties — cranking by hand. (4) Towing — Maintain constant visual contact between towing and towed vehicles. Use of towing hooks only. Don't tow light vehicles; push them. (5) Battery fluid of low specific gravity freezes quickly. (6) Check specific gravity of radiator fluid every three weeks. (7) Check chains against becoming imbedded in tire treads. (8) Prime cylinders with lighter oil at temperatures 15 to 20 degrees (Centigrade) below zero.

January 1940

TANKS AND SCOUT CARS IN FRANCE AND ENGLAND.
[Panzerkampfwagen und Panzerspähwagen in Frankreich und England.]

This article contains illustrations of twelve different types of tanks and scout cars used in England and France and gives a brief description of each.

A SPECIALLY CONSTITUTED TRANSPORT GROUP SUPPLIES OUR MECHANIZED TROOPS.
[Transportgruppe z.b.V. versorgt unsere Panzertruppe.] W. Paschasius

The author discusses the use of aircraft, employed by aviation units, as a means of transporting supplies for troops operating on the ground.

MOTOR VEHICLE EQUIPMENT FOR NIGHT MARCHING AS USED IN THE GERMAN ARMY.
[Das Nachtmarschgerät der Deutschen Wehrmacht.]

A description of various devices used in dimming the lights is accompanied by nine sketches.

THE BIRTH OF THE TANK.
[Die Geburtsstunde der Panzerabwehr.]

The author describes the German defensive at Flesquires 20 November 1917.

DESTRUCTION OF THE FIRST TANK USED ON THE WESTERN FRONT.
[Erster Panzer an der Westfront vernichtet!]

On 11 September 1939 a French tank approached the Westwall. The third shot fired from an antitank gun registered a direct hit. The tank is completely disabled.

OUR EXPERIENCES IN POLAND.
[Was wir in Polen erlebten.]

This article is devoted to a number of narratives on personal experiences in the Polish War. Twelve Polish tanks destroyed by one antitank gun. Lieutenant Evers of the 6th Mechanized Regiment tells about the use of light tanks or combat cars on missions of combat intelligence. Corporal Skarupke relates his personal experiences in a tank attack at Ilza, south of Radom, 9 September 1939. Lance Corporal Rockmann reflects upon 5,000 miles with a supply train.

QUARTERMASTER REVIEW

January-February 1940

QUARTERMASTER MOBILIZATION PROCUREMENT PROBLEMS. M. H. Stewart

THE WORLD'S OIL. J. W. Frey

GENERAL GEORGE WASHINGTON. Major Rowan

RELATIONSHIP OF THE QUARTERMASTER CORPS TO AN AIR FORCE. Lieut. Colonel Drake

THE FIELD RATION. Captain Powers

March-April 1940

THE REMOUNT SERVICE AND THE ARMY BREEDING PLAN. Lieut. Colonel Hardy

REFRIGERATION IN THE WORLD WAR. H. L. Consley

PORTRAIT OF A GENIUS (Generalissimo Mannerheim)

CHEMICALS AND LOGISTICS. Lieut. Colonel Prentiss

RASSEGNA DI CULTURA MILITARE (Italy)

BY LIEUTENANT COLONEL E. M. BENITEZ, Coast Artillery Corps

October 1939

THE ECONOMIC RESOURCES OF THE MEDITERRANEAN COUNTRIES.
[Le risorse economiche dei paesi mediterranei.] (V) General Deambrosis

The author has worked out a graph, which he calls "demographic rhythm," of four Mediterranean powers: Great Britain, France, Italy and Germany. The excess of births over deaths, according to the author, is as follows: Italy 9%, Germany 7%, Great Brigain 3% and France –0.5%. This, in his opinion, tends to show that Italy and Germany are at the beginning of a period of expansion, while Great Britain and France are at a standstill.

CONRAD VON HÖTZENDORF AND ITALY.
[Conrad von Hötzendorf e l'Italia.] Lieut. Colonel Tosti

Field Marshal Conrad von Hötzendorf was born in the small village of Penzig near Vienna in 1852. He attended various military schools and was detailed to the General Staff. After a distinguished service, both as a staff officer and in command of troops, Conrad became Chief of Staff of the Austro-Hungarian forces in 1906. He remained Chief of Staff until 1916 when after the death of Emperor Francis Joseph he was replaced by General von Arz. Conrad was then appointed Commander of the Tyrol Army Group, a demotion which he gracefully accepted.

Colonel Tosti maintains that Conrad hated Italy intensely and states that the Austrian Commander was responsible for the failure of the Piave offensive in June 1918.

THE EUROPEAN WAR.
[La guerra in Europa.] Lieut. Colonel Blatto

The author lays much of the blame for the war on the Versailles Treaty and the failure of the League of Nations. Analyzing the relative strength of the combatants, Colonel Blatto concludes that the opposing forces are numer

ically equal on land; the Franco-British naval forces are superior to those of Germany, and that Germany has air superiority over Great Britain and France.

The operations in Poland, the events on the western front during September 1939 and the naval operations are also discussed.

JACOMO FUSTI CASTRIOTTI, MILITARY ARCHITECT AND INVENTOR (1501-1562).
[Iacomo Fusti Castriotti architetto militare e inventore (1501-1562).] Professor Provasi

This instalment concludes the biographical sketch of this master of fortifications. It is said that some of the works attributed to Vauban were copied from those of Castriotti.

REVUE D'ARTILLERIE (France)

BY CAPTAIN M. R. KAMMERER, Infantry

June 1939

AN HISTORICAL ACCOUNT OF THE EMPLOYMENT OF ARTILLERY, FROM MARIGNAN TO WATERLOO. III. DURING THE REIGN OF LOUIS XIV.
[L'emploi de l'artillerie au cours de l'Histoire, de Marignan à Waterloo. III. Sous Louis XIV.] General Peyrègne

Artillery during the reign of Louis XIV, consisted of light artillery, field artillery, and siege artillery; firing projectiles averaging 3, 7, and 25 pounds respectively. The proportion of guns to men, during this period, was at its lowest, the average being one gun for every thousand men in the army.

The guns were rarely echelonned. Usually they were located a few yards in front of the line of infantrymen or in the intervals in that line. The limited range of the guns made concentrations impossible — except in sieges. Counterbattery duels were rare, due largely to the lack of precision and to the reluctance to endanger the lives of the near-by troops.

The mechanics of the approach march were very similar to those of modern armies, the only difference being the greatly increased front and depths of the present day which have been necessitated by increased precision, range, and rapidity of fires of modern guns.

The characteristics of artillery weapons made artillery preparation for an attack almost valueless, although at Neerwinden in 1693 the Marshal of Luxemburg ordered a four-hour preparation, which was not effective.

Defensive action was characterized by a uniform distribution of all arms over the entire front, by the absence of a mobile reserve, and by the impossibility of shifting artillery support from one point to another.

In the defense of fortified cities, artillery was called upon to furnish concentrations, counterbattery fire, harassing fire, and counterattack support. It was effectively used in repelling hostile penetrations of the fortifications. The judicious use of artillery as well as other arms enabled fortified cities, such as Grave and Lille, to withstand attacks of forces outnumbering their own by 10 or 12 to one. In the attack of fortified cities, the artillery missions were incendiary, counterbattery and destructive.

The generals of that period appear to have placed unequal values on the importance of artillery. Conde and Turenne used it in minor roles. Vauban, as might be expected, made excellent use of artillery in attack or defense of fortified cities. The Marshal of Luxemburg conquered William III at Fleurus in 1690 by concentrating all his artillery on the hostile left wing.

THE STABILITY OF THE AUTOGIRO IN FLIGHT AND ON LANDING.
[La stabilité de l'autogire en vol à l'atterrissage.] Lieut. Colonel Verdurand

The autogiro, once dangerous and fragile, has undergone improvements in recent years which improve its stability, its maneuverability, and its landing ability. These improvements, in a machine which already possessed inherent advantages over the ordinary plane, give to the gyroplane values which cannot be overlooked from the military or commercial point of view. The author, once an opponent of the gyroplane for military use, is now its proponent.

A CONCRETE CASE OF THE USE OF GERMAN ARTILLERY.
[Un cas concret d'emploi de l'artillerie allemande.] Major Voisin

There appeared in the "Artilleristische Rundschau" an illustration of the prompt reinforcement of the direct artillery support of an attacking infantry division by a large part (three groups) of the artillery of an adjacent division. The wide lateral field of fire and the long range of modern artillery weapons makes this shifting of fires possible without displacing the guns, and modern signal communications facilitate the problem of interior artillery liaison.

In the case in question, three hours and five minutes are available from the time the 1st Division receives the corps commander's order to assist the 2d Division with three groups of its artillery until the fire must be furnished in preparation for the new attack.

In accordance with the German doctrine, the three assisting groups are placed under the command of the 2d Division artillery commander. The author of this article is of the opinion that this commander would run into numerous difficulties trying to coordinate the fires of at least six widely dispersed groups of artillery (assuming that he had at least three originally).

The author admits that the German system will bring prompt artillery support to a delayed infantry unit, but he is doubtful of the effectiveness of such support, particularly if it is in the form of a rolling barrage which requires careful emplacement and coordination of the batteries. The author disagrees therefore with the German notion that, "Medium but opportune effects are preferable to better but tardy effects."

A GRAPHICAL METHOD FOR PRELIMINARY DETERMINATION OF POSSIBILITIES OF OBSERVATION.
[Méthode de détermination préalable des possibilités d'observation.] (II) Lieutenant Chamouard

In a preceding article (see Military Review, March 1940, page 113) the author gives a theoretical discussion of his system for determining the possibilities of observation. Based on that discussion, which is admittedly too long and complicated, he here presents a practical method, requiring less equipment and fewer computations, for obtaining the desired panoramic sketch and information of the sector involved.

It is extremely doubtful, however, that the simplified system is any more effective than the visibility sketch of our service which is still less complicated than that of Lieutenant Chamouard.

July 1939

GENERALS GABRIEL ROUQUEROL AND JOSEPH ROUQUEROL.
[Les généraux Gabriel Rouquerol et Joseph Rouquerol.] (Editorial)

Upon the death of General Joseph Rouquerol, "La Revue d'Artillerie" pays homage to him and to his brother, Gabriel, who died in 1933. Both were eminent artillerymen, distinguished leaders and cultured gentlemen.

Their careers were remarkably identical. Born at Toulon (Joseph in 1854 and Gabriel in 1856), they both attended the Ecole Polytechnique, the Ecole d'Application de l'Artillerie et du Génie, and the Ecole Supérieure de Guerre. Both saw service in Algeria as captains of artillery. Joseph was appointed Chevalier of the Légion d'Honneur a year ahead of his brother. They both received appointments as brigadier general in 1912, and both of them were to command divisions in the war against Germany, when they were promoted to Commanders in the Légion d'Honneur.

These brothers had literary ability in addition to their military ability, and their writings represent an important, interesting and varied contribution to French military history.

AN HISTORICAL ACCOUNT OF THE EMPLOYMENT OF ARTILLERY, FROM MARIGNAN TO WATERLOO. IV. DURING THE REIGNS OF LOUIS XV AND FREDERICK II.
[L'emploi de l'artillerie au cours de l'Histoire. De Marignan à Waterloo. IV. Au temps de Louis XV et de Frédéric II.] General Peyrègne

In the middle of the eighteenth century artillery once again began to assume an important role in warfare due to the efforts of the Valliere family in France and of Frederick II in Prussia. The proportion of artillery increased constantly, jumping to 5 guns per 1,000 men, following a period in which the average had been one gun to each 1,000 men. The guns were distributed along the front in densities varying from 4 to 8 guns per 200 yards.

Artillery preparations were, if used, usually brief. The heaviest preparation during this particular period was that used by Frederick at Kühnersdorf in 1759. Ninety-two Prussian guns averaged 25 rounds each over a period of 30 minutes on a front of about 1,500 yards.

Counterbattery fire, during combat, was rarely resorted to, although at Breslau, Austrian artillery, outnumbering the Prussian guns three to one, succeeded in silencing the latter in a duel that lasted one hour. But usually the guns were not located close enough to undertake counterbattery missions.

Artillery "charges" came into vogue during this period, and were used most effectively by the English, who, at Minden in 1759 and at Marbourg in 1760, pursued the retreating French with cavalry and artillery at the trot.

A study of the use of artillery in the battles of the Louis XV period — Kollin, Prague, Fontenoy, Leuthen, Rossbach, Kühnersdorf — reveals the fact that the artilleryman of that day had to worry about a good many of the problems facing the artilleryman of today: observation, distribution of guns, location of guns, security, ammunition supply, fire control.

It was Frederick II who appreciated, more than any of his contemporaries, the importance of artillery in quantity. He saw in artillery the most effective "battering-ram" for breaking down the hostile defenses, and insisted on "as much artillery as possible." It is surprising therefore to read that, at Kühnersdorf, Frederick ordered his infantry to continue its attack against Russian positions before the Prussian artillery could displace forward to assist the attack. The results were disastrous to the Prussians.

On the other hand, Frederick's judicious use of artillery against the hostile flanks was responsible for his victories over the Austrians at Leuthen and the French at Rossbach.

NOTES ON THE PERSPECTIVE PLANE.
[Notes sur le plan perspectif.] Major Maumy, Lieutenants Proust and Vouillot

Presented simultaneously are three discussions on methods for obtaining:
(1) The sheaf of fire.
(2) The plan of curves of equal ranges.

Using the perspective plane, all three methods are based on the same principle although developed differently. It is believed that the practical value of the systems discussed is diminished by the equipment and computations involved.

RELINING TUBES.
[Le chemisage des bouches à feu.] Captain Chabrol

The author discusses the relative merits of replacing and of relining wornout tubes.

REVUE D'INFANTERIE (France)

BY CAPTAIN M. R. KAMMERER, Infantry

August 1939

A SOLUTION TO THE TACTICAL PROBLEM GIVEN ON THE ENTRANCE EXAMINATIONS TO THE WAR COLLEGE.
[Une solution au thème tactique proposé au concours d'entrée à l'Ecole de guerre.] Major X

Solution and discussion of a map problem involving entry into and continuation of an attack. Most of the problem is concerned with the infantry regimental commander, and with the tank battalion commander.

MATHEMATICAL STUDY OF THE POWER OF ANTITANK WEAPONS.
[Etude mathématique de la puissance des armes antichars.] Captain Chazal-Martin and Captain Suire

This article was inspired by the ruling of a maneuver umpire who, arbitrarily and by the mere stroke of a pencil, destroyed two sections of tanks. Dubious, and unable to prove their point by actual tests, the authors have attempted to find out by mathematical computations what quantities of tanks are necessary for a successful attack against a position having normal antitank and artillery weapons, as well as the number of such weapons required to stop a tank attack.

Despite numerous charts, impressive figures, and alluring mathematical curves, the discussion seems too theoretical to be convincing. However, the authors have convinced themselves — and no doubt many will agree with them — that there is no weapon so dangerous to tanks as maneuver umpires.

Among other conclusions are these:

Based on a density of 120 tanks to the mile, 40 weapons should be able to stop the attack, i.e., one weapon for three tanks.

For a successful penetration, 8 tanks must be opposed to each light weapon and 4 to each artillery gun in the zone of attack.

INFANTRY REGULATIONS; PART 3 — FIELD SERVICE.
[Le Règlement de l'infanterie (Service en campagne).] Major de Linarès

The 1938 edition of the French Field Service Regulations for Infantry has incorporated numerous changes that have resulted from lessons learned from recent conflicts and from transformations in organization, in matériel and in transportation.

Great emphasis is placed on security measures to be taken against gas, airplanes, and armored vehicles. The question of security is discussed in detail in connection with each of the problems confronting infantry units. These security measures are either passive or active. The passive measures are those precautions, of a permanent nature, that are taken to prevent surprise. They should be automatic. The active measures are those steps taken to combat the hostile weapon when it is in striking distance.

Also covered in detail is the subject of motor transportation, which, according to the author, has been neglected in the French army. No longer should an infantry unit be considered as a package entrusted to a transport agency for delivery to a certain destination. It is rather a battle unit availing itself of supplementary means in order to execute its missions more rapidly.

THE ATMOSPHERE OF THE BATTLEFIELD.
[L'atmosphère du champ de bataille.] Lieut. Colonel Armengaud

This is the last of the annexes in which are to be found, under various headings, quotations from French authors illustrating the atmosphere of the battlefield. For example, under the heading "Courage and Fear" the following passage is cited from Captain Rimbault's "Journal d'un officier de ligne":

"In battle, there are certain fellows who never let you down; at crucial moments you instinctively run to them to seek comfort when the flesh is weak. Whether they be leaders or buck privates, you can be sure to find them doing the right thing at the right place and at the right time. They are the ones who win battles, for courage, as much as fear, is contagious."

September 1939

FIRE PREVENTION IN PARIS, AND THE FIRE DEPARTMENT.
[La défense de Paris contre les incendies, et le corps de sapeurs-pompiers.] Lieut. Colonel Delbé

This is an interesting article on fire prevention and fire fighting in Paris since the days of the Romans, who introduced into Gaul their system of police as well as of fire protection. During and following the germanic invasions, Paris (Lutecia at that time), had no means or methods of fighting fires. The city was practically destroyed by fire in 276.

Since the end of the sixth century, however, the danger of fire has been a matter of concern to practically all French rulers who have taken steps, varying considerably in effectiveness, to prevent or combat fires in the French capital.

This article is of interest to the army and particularly to the infantry because the fire department of Paris today is an organized regiment of French infantry, and has been since 1866. It is placed at the disposition of the civil authorities of Paris but its administration, discipline, command, promotions and pay are all controlled by the Minister of War.

DEFENSE OF INFANTRY UNITS AGAINST AIR ATTACK.
[La défense contre avions dans les unités d'infanterie.] Captain X

See digest in the March 1940 issue of Military Review, page 52.

COMBAT IMPRESSIONS.
[Impressions de combat.] Colonel Heym

This is an account of the experiences of the author (then a captain) as commander of a company in August 1914. Combat was a new experience to most of the men as well as to the officers. Information of the enemy was lacking, as it usually will be, to advance elements in warfare that is not stabilized. Once the enemy had been met, control became difficult and fire discipline approached the impossible. Units became intermingled to add to the confusion of battle. Leaderless troops (all company officers had been killed) seemed to find retreat the only solution to their predicament.

These are the author's impressions of his combat experience at Mulhouse. They are impressions that can be obtained only by experience.

NOTES ON EQUIPMENT FOR RIFLE RANGES.
[Au sujet de l'équipement des champs de tir.] Major V

The problem of giving our combat exercises some sort of reality is a difficult one to solve. The solutions offered here deal with the construction of various types of disappearing and moving targets operated by systems of pulleys and levers, not essentially different from the systems we are now using. The moving tank target is arranged and operated in the same manner as those we have seen on our own ranges.

Little attention is paid to night firing in our infantry units, and yet such firing requires much more discipline and coolness in actual combat than does firing by day. The use of flares for lighting up the field of fire is apparent. For simulating the flash of enemy machine guns or of antitank weapons, the author used successfully a system of filaments lit up by current generated by an ordinary blasting machine, and placed in front of the target. Such a system has the advantage over flares of requiring prompt fire and careful location of the target.

DEFENSE AGAINST AIR INFANTRY.
[Défense contre l'infanterie de l'air.] Major B

A new problem in defense is presented by the threat of hostile troop landings in rear areas either by parachute troops or from transport planes. Parachutists were used by the Soviets in Finland with little success. That this is any criterion of the possibilities of air infantry cannot be justified. On the contrary, the possibilities of air infantry are vast, and the element of surprise gives to it decided advantages over an unprepared adversary. If, however, the necessary precautions are taken, the dangers of air infantry can be easily reduced.

Defensive measures should be more or less permanent. During periods of political tension, prior to any probable declaration of war, they should be particularly strong in important industrial or military centers, and in areas where landings of considerable numbers of large planes are possible.

An effective system of alerts or warnings is absolutely essential to the success of defense against air infantry.

Aerial defense is of course of prime importance. It should operate from points near the frontier and from points in the vicinity of sensitive areas.

Ground defense should consist of fixed elements and of mobile elements. The fixed elements should be organized with local resources and personnel coming from the area concerned. Reserve officers, territorial troops (National Guard) would be incorporated in units for the fixed defense. The mobile defense should be composed of completely motorized units of the regular army, including reconnaissance elements in fast-moving vehicles, armored cars or tanks and motorized infantry.

REVUE MILITAIRE SUISSE (Switzerland)

BY CAPTAIN M. R. KAMMERER, Infantry

October 1939

PEDAGOGICAL EXAMINATIONS OF RECRUITS.
[Les examens pédagogiques des recrues.] Captain Nicolas

Pedagogical examinations, says Captain Nicolas, prove merely that the youth of the nation has acquired a mass of facts on a wide variety of subjects; facts soon to be forgotten, and too few on any particular subject to be of much value if not forgotten. The public school system appears to have neglected the moral and civic education of its students. It has permitted memory to replace reasoning and judgment. It has slighted the mother tongue.

The result is that military schools must re-educate the recruits, must attempt in a few months to replace the anti-militaristic teachings of the public schools with a patriotic education. The recruit schools, instead of prolonging, have to revamp the previous education of their students.

INDIVIDUAL INSTRUCTION OF THE SOLDIER IN THE USE OF HEAVY WEAPONS.
[L'instruction individuelle du combattant dans l'emploi des armes lourdes.] (I) Lieutenant Reisser

This is the first of a series of articles on "Troop Training." They were made by officers of the 3d Infantry Regiment at the instigation of the Regimental Commander, Colonel Montfort, who foresaw, not only an improvement in the training of the units, but also in the education of his junior officers. The articles were written, of course, "in addition to their other duties."

This first study is an outline of a practical course covering the essential points in the training of both the individual and the squad in the handling of infantry cannon and howitzers. Use of the terrain for advancing, observing, firing and shelter are just as important to such troops as they are to the rifleman.

The exercises for the squad or team handling a heavy weapon emphasize speed and precision. Repetition of any exercise on different terrain improves speed and precision while presenting new difficulties and improving flexibility.

GENERAL VON STEUBEN.
[Le général de Steuben.] Colonel Lecomte

Brief review of the circumstances surrounding the voyage to America in 1777 of General von Steuben, as related by General J. M. Palmer in his book on this famous Prussian organizer. It appears that Benjamin Franklin's flowery letter of introduction, presented by von Steuben to Washington on his arrival in 1777, was an imposture. It does not, however, detract from the fact that von Steuben's services to the American cause were indispensable, and that a victory for the colonies might have been impossible without them.

November 1939

THE TWO "MOBS."
[Les deux "mob."] Major de Traz

In speaking of the two "mobs," Major de Traz refers to the mobilization of 1914, which the Swiss as well as the rest of the world hoped would be the last, and to that of 1939. He notices certain important differences, however, between the conditions surrounding the two mobilizations.

In 1914 the storm came up suddenly, and, as it developed, moved away from Swiss frontiers without ever becoming a serious threat. In 1939, the approach of the storm could be foretold long in advance, but an obscure military and political situation leaves much doubt as to whether or not Switzerland will be affected by the present holocaust.

It is the danger of such a threat that is probably responsible for a Swiss unity in 1939 that was never approached in the years 1914-1918. The entire nation, for example, acclaimed as one the appointment of General Guizan in 1939, whereas in 1914 no such unanimity was apparent in the selection of a commander in chief of the armed forces.

Twenty-five years ago few civilians appeared interested in the activities of the few poorly equipped divisions that were protecting the frontiers. Today the entire nation is ready to back up the frontier defenses which, due to better training and equipment, are less a "mob" than in 1914.

INDIVIDUAL INSTRUCTION OF THE SOLDIER.
[L'instruction individuelle du combattant.] (II) Major Brand

Second of the series of studies on "Troop Training." The first part of this article outlines exercises in scouting and patrolling and the conduct of the infantryman both on the attack and the defense. The second half covers exercises in the same subjects for the squad or group. It is prefaced by the remark that the instruction of the individual is the necessary basis for the instruction of the squad.

OCCUPATION OF FRONTIER POSITIONS: AN EXPERIMENT.
[L'occupation des frontières: une expérience.] Lieutenant Bovet-Grisel

Instead of a study of the tactical or physical aspects of this problem, the author presents its psychological aspects in so far as the enlisted personnel is concerned.

Having decided on a plan of frontier fortifications, the best results will be obtained by assigning portions of the task to the noncommissioned officers and letting them do the task as they see fit. The results may vary in certain respects but not with respect to their excellence which will be general.

The foregoing and the following conclusions, among others, are drawn as a result of actual experiences while working on the frontier fortifications:

(1) The best results are obtained by organizing groups or teams of men from the same town.

(2) At the end of several weeks, the task loses much of its importance as a criterion of the military value of the men. Excellent noncoms (from a military standpoint) may not prove to be satisfactory labor-foremen.

(3) In assigning tasks, consideration should be given to the civilian occupations of the men. A man who is extremely inefficient at one task will be unusually efficient and interested in some other task more in line with his previous occupation.

(4) A factory hand and a farm hand cannot be expected to show the same kind of obedience. The former will display more automatism, the latter initiative.

December 1939

CAN WE DEFEND OURSELVES?
[Sommes-nous capables de nous défendre?] Colonel Frick

An appeal to the patriotism of those behind the lines.

The success or failure of an army, regardless of its training and equipment, is largely dependent upon the willingness of the people of the nation to make every sacrifice to save their liberty and independence. Defeatist propaganda is harmful, destructive criticism must be eliminated. A spiritual and moral defense can be developed by the people themselves, and if this defense is sufficiently strong it will ward off attacks by aggressors without bloodshed.

OUR NEW INFANTRY REGULATIONS.
[Notre nouveau Règlement d'infanterie.] Colonel Lecomte

The new Swiss regulations, modeled on the 1938 regulations of the French, are devoted for the most part to the infantry battalion. In view of this fact, Colonel Lecomte limits his discussion to the battalion.

Infantry will continue to be the determining factor in warfare particularly in Switzerland where the terrain is suitable neither for motorized nor air forces.

Of the means available to the battalion commander for combat, the machine guns and mortars are the most important. The terrain in Switzerland lends itself readily to the use of machine guns in the defensive, which is the main mission of the Swiss army. And the mortars are capable of firing heavy projectiles from hidden positions into areas which cannot be covered by the machine guns.

Discussion of offensive action in the regulations is brief. Defensive operations, of prime interest to the Swiss, are more thoroughly covered. The order to defend a position implies "the duty to resist until death" at one's assigned post. Only a formal order from higher authority is considered grounds for evacuating a position.

Among special types of infantry combat is discussed "la guerre de chasse." It closely approximates guerrilla warfare and is intended to create a state of insecurity behind the enemy lines. Such combat is entrusted to small, mobile infantry detachments, well disciplined and well led.

A WINTER POST IN THE ALPS.
[Un poste d'hivernage alpin.] Lieutenant Vuille

The author was gone from 20 January to 12 April 1939, on an experimental mission which took him to an isolated post in a high, poorly-sheltered Alpine area where the danger of avalanches made supply difficult. During forty days of this period he was isolated from the world.

His load of supplies weighed 264 pounds which included an 88-pound food supply for his 40 days of isolation. The base of the food supply was "Pemmican," a Danish powdered meat often used in Arctic expeditions. It is a healthy and satisfactory substitute for fresh meat.

A tent was found to be more satisfactory for general use than an igloo or snow hut. The latter are dependent upon the type of snow available and are subject to melting even in the Alps in winter. Furthermore, they are extremely damp if the temperature gets above plus 14 degrees (F). Their chief advantage is their ability to withstand and protect against the most violent tempest. It was found, however, that a three-sided pyramidal tent was just as effective in tempests. The tent used measures 80 inches on a side, is supported by three wooden poles, and is anchored by snow walls on the skirts of the sides of the tent. The snow walls also serve as a protection against the wind. This tent is very stable, and neither snows nor winds have much effect on its sloping sides. It weighs 31 pounds, complete.

A good sleeping bag, according to Lieutenant Vuille, is the most important accessory on such an expedition. His weighed 11 pounds and consisted of an interior thickness of fine down, a middle thickness of wool, and an outer covering of canvas.

The best clothing for cold weather consists of any number of knitted garments (proportional to the cold), all covered by a windbreaker which is not impermeable to water. Rubber boots of large size, worn over five pairs of socks prove to be as satisfactory as any footwear for extremely cold weather. If the socks are changed twice daily, no foot troubles will result.

Sun glasses are an absolute necessity for protection against the glare of the sun on snow; and during a snow-storm there is nothing quite as valuable as a gas-mask.

REVUE DES QUESTIONS DE DEFENSE NATIONALE (France)

BY CAPTAIN M. R. KAMMERER, Infantry

October-November 1939

THE NEUTRALS AND THE EUROPEAN WAR.
[Les neutres et la guerre européenne.] Maurice Pernot

The modern nation that benefits by maintaining neutrality during the course of a war is the exception rather than the rule. There is no implication here that all nations should align themselves with one coalition or another. The argument is, rather, that modern warfare affects the entire universe, and rarely will the advantages of neutrality outweigh its disadvantages. In other words, all nations suffer as a result of war in modern times.

The decision of a nation to remain neutral should be accepted as a fact, subject to neither criticism nor coercion. The contributions of a neutral power will ordinarily be of greater assistance to a belligerent than would their contributions as a participant.

A study of the present world diplomatic and economic situations reveals the fact that there are as many types of neutrality as there are nations. Complete and absolute neutrality has become an impossibility, due chiefly to the fact that wars involve not only territorial, commercial and political adjustments, but also spiritual and moral factors. The type or degree of neutrality maintained by the non-belligerents is determined by the material

and moral forces involved, and these will vary with the attitude of the belligerents, the proximity to the theater of operations, and ties in the form of national or international treaties.

THE FOOD SITUATION IN GERMANY AT THE BEGINNING OF THE WAR.
[La situation alimentaire du Reich au début de la guerre.] Henri Laufenburger

Official German figures on the food situation lead to the conclusion that the Reich, including its recently annexed or conquered territories, is still very much dependent on the continued flow of foodstuffs from neutral countries. Using the figures of 1938, it is found that approximately 50 per cent of the German imports came from nations which are at present neutral and in a position to continue to furnish supplies to Germany. The blockade is assumed to be cutting off the remaining 50 per cent of her imports.

The probability of continuing importations from her neutral neighbors to the same extent as before is lessened by three factors:

(1) Transportation facilities are less available.

(2) These neighbors may find better markets outside of Germany for all or part of their products. The French and British are proving to be willing customers.

(3) Germany will be less able to pay, since the prosecution of the war will require the machines, planes, chemical products, etc., which she has heretofore used for barter. Her trade balance with these neutral neighbors has, however, always been decidedly in her favor.

The ability of Russia to assist Germany is not considered on the grounds that Russia has difficulty in supplying her own demands for foods.

THE PROBLEM OF TEXTILES.
[Le problème des matières textiles.] Etienne Burlet

The great importance of iron, nickel, copper, coal, and other minerals in time of war has to some extent obscured the importance of textiles. The comfort and health of the nation, and particularly of its soldiers, is dependent upon an adequate supply of clothing, without which morale and efficiency suffer.

France is well equipped to turn out the manufactured articles of clothing, but she has been dependent upon foreign sources for her raw materials, particularly wool.

Nor is France anxious to resort to synthetic textiles as long as the superior products of nature can be obtained. Laboratory tests have proven the synthetic textiles to be inferior, and the failure of Germany and Italy (until recently at least) to furnish anything but natural fiber materials to their troops would seem to confirm the laboratory tests.

If present plans are not interrupted, France should soon be able to obtain her necessary supplies of textiles from her own colonies. The valley of the Niger, as a result of irrigation projects, will be capable of furnishing cotton, while the development and improvement of sheep raising in Northern Africa is expected to satisfy the demand for wool.

December 1939

JOFFRE. Jean Fabry

Of particular interest in this article are the two letters written by Joffre to the Minister of War: the first on 3 September, 1914, explaining his decision to continue the withdrawal of the armies; the second on 5 September, 1914, explaining his decision to attack.

These letters give us an idea of the character, the beliefs, and the strategy of Joffre who, ordinarily of a retiring disposition, could not avoid displaying his admirable qualities when confronted by a crisis such as that of September 1914.

THE DEFENSE OF THE PANAMA CANAL.
[La défense du Canal de Panama.] André Siegfried

This well-known author releases in this article portions of the chapter on the Defense of Panama from his latest work, "The Suez and Panama Canals." The discussion of the defense of the Canal Zone is accompanied by a few observations on the policy and administration of the United States in the Zone.

The importance of the Canal to the United States is and always has been, not economical, but political or military, which explains the military aspect of the zone that greets and surprises most visitors.

The general impression obtained from this article is that the United States has exceeded its rights in its administration of the Canal Zone affairs, but that this administration has, nevertheless, been satisfactory to all nations and no nation has any right to complain.

THE STRATEGIC DIPLOMACY OF ADOLPH HITLER.
[La diplomatie stratégique d'Adolphe Hitler.]

During the past three years preceding September 1939, Hitler, by his diplomatic measures and with little or no shedding of blood, changed the map of Europe almost as much as Napoleon changed it in fifteen years of military campaigns. In two years, Hitler added 40,000,000 to the population of Germany by a series of diplomatic maneuvers that began with the denunciation of the military clauses of the Treaty of Versailles. The next step was to obtain security in the west, first by reoccupying the demilitarized Rhine zone and then, as a result of the revolution in Spain, by keeping France worried about four frontiers instead of one. The third step, the development of the plan to the east, then became possible. The Anschluss in Austria so completely enveloped Czechoslovakia that its annexation became a simple matter. Poland was next in line. She too was blocked on three sides and her capitulation to German demands appeared certain. That it was necessary to use force in subduing and annexing Poland was, according to the author, a surprise to Hitler and a check which has forced him to modify his strategic diplomacy both in plan and in method. For he is confronted by opposition which he had not expected, and the allies on whom he had counted are uncertain.

THE MOBILIZATION OF THE FIELDS.
[La mobilisation des champs.] H. Hitier

Although, from an agricultural point of view, France is much better off today than she was in 1914, the government and the high command are paying particular attention to the problem of maintaining the maximum agricultural production. The agricultural problem, like the industrial problem, calls for a careful mobilization of resources as well as of labor. Keeping the troops at the front well fed is just as important as keeping them well armed.

ROYAL ENGINEERS JOURNAL (Great Britain)

March 1940

GERMAN VIEWS ON THE DUTIES OF ENGINEER UNITS IN MASSED TANK ATTACKS. Brigadier General Sir James E. Edmonds

THE EMPLOYMENT OF DIVISIONAL ENGINEERS IN CONJUNCTION WITH OTHER ARMS IN WAR. Brevet Major (now Brigadier) G. E. H. Sim

VETERINARY BULLETIN
(Supplement to "The Army Medical Bulletin")

January 1940

CENTRAL AMERICAN HORSES IN THE UNITED STATES ARMY. Captain McGinnis

WISSEN UND WEHR (Germany)
BY MAJOR WM. H. SPEIDEL, Infantry

September 1939

THE DEFENSIVE WAR IN THE EAST.
[Uber den Abwehrkampf im Osten.] General von Metzsch

This writing was completed by General von Metzsch on 19 September 1939, at a time when his observations convinced him that the Poles had become completely disorganized and demoralized. He justifies the intervention of Russia on the ground that Poland had made no attempt to placate or absorb the White Russian and Ukrainian minorities.

The Polish state came to a catastrophic end when the keen-sighted policies of Pilsudski gave way to the chauvinistic principles of Beck, whose friendship with England caused him to underestimate the defensive power of his own nation and overestimate the value of the foreign alliance. The catastrophe was the climax of Germany's defense against the countless challenges cast before her by Poland.

Following these statements the author sets forth a brief record of Germany's conduct of the war, carried on with well-disciplined precision and speed. He comments on the wonder of military experts that forces of such great mobility could have been supplied.

THE DEVELOPMENT OF THE FRENCH ARMY FROM THE END OF THE WAR IN 1918 TO THE PERIOD OF REORGANIZATION IN 1928.
[Die Entwicklung des französischen Heeres von Kriegsende 1918 bus zur Heeresreform 1928.] Captain Wolfdietrich v.Xylander

At the time of the armistice the French Army had a strength of 6,471,589 men, of which 4,007,442 were combatants organized in 102 divisions (1,081 battalions). There was much opposition toward decreasing the size of the army to the legal peace strength, which in July 1914 was 883,500 men, a figure which was considered to be excessive. Finally, in the beginning of 1924, following a period of compromise, during which the period of universal service was set at one and one-half years, the army consisted of:

In France — 13 army corps of 23 infantry divisions and 5 cavalry divisions (390,000 men).

In the Rhineland and the Ruhr — 3 army corps of 9 infantry divisions (150,000 men).

In Algeria and Tunis — 1 army corps of 4 infantry divisions (70,000 men).

In Morocco — 75,000 men.

In Syria, the colonies and the mandated areas — 85,000 men.

The reforms of 1928 contemplated a force that would provide:

(1) Means of rapid mobilization of an army that would afford security to the homeland and afford the possibility of strategic concentrations.

(2) As an objective, the constitution of an effective army that would be in a position to absorb the available manpower of the nation.

For the first provision at least 40 divisions were considered necessary. Because it was believed that this figure might readily be attained by a doubling of the peacetime figure, it was recommended that the minimum be 20 peacetime divisions with sufficient corps troops to skeletonize 20 army corps.

For the second provision it was believed that there should be a basis upon which might be formed an army of 2½ million, organized into 80 to 100 divisions. This basis could be formed by the 20 white homeland divisions plus the 6 colonial divisions. By doubling, 52 divisions could be formed, and an additional 26 divisions could be organized. This result added to the forces in North Africa would bring the total to a figure well over 80 divisions.

In accordance with these ideas the following reforms were agreed upon: for defense of the homeland — 20 white infantry divisions, 5 white cavalry divisions and strong "réserves générales" as "forces du territoire métropolitain," plus 1 white and 5 colored North African and colonial infantry divisions as "forces mobiles"; for North Africa — 8 infantry divisions and 3 cavalry divisions; for the other colonies — forces approximating 6 infantry divisions.

THE NEUTRALS. NAPOLEON I ON ENGLAND'S WAR POLICY REGARDING THE FREEDOM OF THE SEAS.
[Neutrale. Napoleon I. über die englische Seekriegsrechts-Politik.] Karl Linnebach

This is an article based on the correspondence of Napoleon dictated by him while at St. Helena under the title "Neutres."

WHAT WAS THE SIGNIFICANCE OF THE ENTENTE'S OPERATIONS AT SALONIKA WITH RESPECT TO THE PROGRESS AND OUTCOME OF THE WORLD WAR?
[Welche Bedeutung kommt dem Saloniki-Unternehmen der Entente für den Verlauf und Ausgang des Weltkrieges zu?] Lieutenant Glahn

October 1939

THE DAY OF FREEDOM.
[Tag der Freiheit.] Senator Adalbert Boeck

The author presents the patriotic and political aspects associated with the liberation of Danzig.

THE GERMAN WAR AGAINST ENCIRCLEMENT.
[Der deutsche Krieg gegen die Einkreisung.] (I) Colonel v.Xylander

This is a comprehensive study of the Polish War by a well-known writer on timely military subjects. He presents both Polish and German aspects prior to the mobilization of forces, the German plan and its application which led to a breakthrough on all fronts and culminated in a complete envelopment of the Polish forces.

In conclusion he states that the rapid termination of the Polish affair not only eliminated the military opponent on the Eastern Front, but also improved the political situation of Germany by the terms which she was able to make with Russia, gave Germany a military and economic advantage through the acquisition of the natural resources and industries of Poland, and opened the door to the east.

SEA-BOOTY AS THE MOST IMPORTANT MEANS OF ENGLAND'S WAR AT SEA.
[Die Seebeute als wichtigstes Kampfmittel des englischen Seekriegs.] Former Director of the Ministry Rosenberger

Comments on the book, "England's Power," by George F. S. Bowles. The author states that he has written these comments in order to interpret the real significance of sea warfare, a conception which he believes may be distorted by the average reader of Mr. Bowles' book.

GREAT BRITAIN AND THE BALTIC SEA, 1780 TO 1812.
[Grossbritannien und die Ostsee 1780 bis 1812.] (I) Dr. Schoppen

November 1939

THE PRACTICE OF THE RIGHT TO TAKE PRIZES.
[Die Praxis des Prisenrechtes.] Admiral Gladisch

This article is a comparatively long discourse on international law in its application to the right of a belligerent to take maritime prizes. It also includes the German interpretation of the right to take prizes.

THE GERMAN WAR AGAINST ENCIRCLEMENT.
[Der deutsche Krieg gegen die Einkreisung.] (II) Colonel v.Xylander

The author covers the first two months on the Western Front and the war at sea. He presents some interesting data among which may be included the following:

The border between the German States and Imperial France of the summer of 1870 was identically the same as that of September 1939 (the political structure of the two belligerents having meanwhile undergone considerable change — translator's note). Its southern sector (Basel to Lauterburg) represents an aerial flight of 100 miles; from Lauterburg to Perl on the Luxemburg — French — German border, 90 miles.

During the first five weeks of the war England transported to France 160,000 men and 25,000 motor vehicles without casualties.

On 29 September the Allies began to abandon the occupation of German territory (meanwhile it had occupied about 50 German villages and had initiated the envelopment of Saarbrücken) and completed it on 24 October.

Up to 17 October the German casualties amounted to 196 dead, 356 wounded and 114 missing in action, while on the following day it was reported that, up to that time, the Germans had taken prisoners amounting to 25 French officers and 664 men.

Up to 18 October the Germans had lost 11 airplanes, while the French had lost 48 and the British 12.

Aircraft bombing was initiated by 12 British planes on 4 September in an attack on Wilhelmshaven and Cuxhaven; 7 planes were shot down by antiaircraft guns. On 29 September the British raid on Helgoland resulted in a loss of five planes out of twelve.

Germany succeeded in running the British blockade with submarines and airplanes to the extent of conducting operations against the Shetland and Orkney Islands and along the eastern coast of Scotland, sinking the "Courageous" and damaging the "Ark Royal," bombing a heavy cruiser near the Isle of May, penetrating the harbor of Scapa Flow and sinking the "Royal Oak" and damaging the "Repulse," entering Firth of Forth where the cruisers "Southampton" and "Edinburgh" and the destroyer "Mohawk" were torpedoed, and attacking with aircraft an allied convoy in the North Sea.

GREAT BRITAIN AND THE BALTIC SEA, 1780 TO 1812.
[Grossbritannien und die Ostsee 1780 bis 1812.] (II) Dr. Schoppen

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April 1940

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GERMANY AND THE TRANSVAAL BEFORE 1896. C. D. Penner
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VERSAILLES TWENTY YEARS AFTER. René Albrecht-Carrié

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LIST OF PERIODICALS INDEXED AND KEY TO ABBREVIATIONS

A Med Bul = Army Medical Bulletin
A Ord = Army Ordnance
A Quar = Army Quarterly (Great Britain)
Cav Jour = Cavalry Journal
Cav Jour [GB] = Cavalry Journal (Great Britain)
CA Jour = Coast Artillery Journal
FA Jour = Field Artillery Journal
Ftg Forc = Fighting Forces (Great Britain)
La France Mil = La France Militaire (France)
Inf Jour = Infantry Journal
Jour Amer Mil Inst = Journal of the American Military Institute
Jour RAMC = Journal of the Royal Army Medical Corps (Great Britain)
Jour R Art = Journal of the Royal Artillery (Great Britain)
Jour USII = Journal of the United Service Institution of India (Great Britain — India)
Kras = Krasnaya Zvyezda (Russia)
MC Gaz = Marine Corps Gazette
Mil Mitt = Militärwissenschaftliche Mitteilungen (Austria)
Mil Rund = Militärwissenschaftliche Rundschau (Germany)
Mil-Woch = Militär-Wochenblatt (Germany)
Mil Eng = Military Engineer
Mil Surg = Military Surgeon
Nav Inst Proc = Naval Institute Proceedings
Panzer = Panzertruppe (Germany)
QM Rev = Quartermaster Review
Ras Cul Mil = Rassegna di Cultura Militare (Italy)
Rv d'Art = Revue d'Artillerie (France)
Rv d'Inf = Revue d'Infanterie (France)
Rv Mil Suisse = Revue Militaire Suisse (Switzerland)
Rv Def Nat = Revue des Questions de Défense Nationale (France)
Roy Eng Jour = Royal Engineers Journal (Great Britain)
Vet Bul = Veterinary Bulletin
Ws & Wr = Wissen und Wehr (Germany)

GENERAL

For Aff = Foreign Affairs
Geog Rev = Geographical Review
Jour Mod Hist = Journal of Modern History
Pol Sci Quar = Political Science Quarterly

Jan = January
Feb = February
Mar = March
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C — Socio-Economic History

The historical significance of the World War. (Mil Rund — Jul 1939)

E — General Military History

Rennenkampf as the commander of the First Army in the fall of 1914. (Mil-Woch — 28 Jul 1939)
Conrad von Hötzendorf and Italy. (Ras Cul Mil — Oct 1939)

G — Arms and Services

AIR ARM

Aerial operations of the German Eighth Army before and during the Battle of Tannenberg. (Mil-Woch — 25 Aug 1939)

ARTILLERY

The German field artillery, 1914. (Mil-Woch — 1 Sep 1939)

CAVALRY

Tanks in combat with and against cavalry. (Mil-Woch — 9 Jun 1939)

INFANTRY

The German infantry, 1914. (Mil-Woch — 25 Aug 1939)

QUARTERMASTER SERVICE

Refrigeration in the World War. (QM Rev — Mar-Apr 1940)

TANKS

Lessons from the English tank attack at Cambrai, 20 November 1917, as applied to the present. (Mil Rund — May 1939)
Tanks in combat with and against cavalry. (Mil-Woch — 9 Jun 1939)
The birth of the tank. (Panzer — Jan 1940)

H — Military Conduct of the War in the Field

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The taking of Montfaucon. (Inf Jour — Mar-Apr 1940)
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The penetration as applied in the battles in the year 1918. (Mil Rund — May, Jul, Dec 1939)
Lessons from the English tank attack at Cambrai, 20 November 1917, as applied to the present. (Mil Rund — May 1939)
Baptism of fire. (Mil Rund — Jul 1939)
The German defense against French and English penetrations in the Spring of 1917. (Mil Rund — Jul 1939)
Thoughts on the application of war experiences to troop training. (Mil-Woch — 2 Jun 1939)
Supply and operations plan. (Mil-Woch — 1, 7 Jul 1939)
British transportation on the Western Front, 1914-1918. (Mil-Woch — 1 Jul 1939)
The Battle of Tannenberg, 1914 as evaluated from the standpoint of military history, tactics and education. (Mil-Woch — 18 Aug 1939)
Combat impressions. (Rv d'Inf — Sep 1939)
Joffre. (Rv Def Nat — Dec 1939)

J — Campaigns and Battles

EUROPEAN AREA — BALKAN THEATER

Grecian Front

What was the significance of the Entente's operations at Salonika with respect to the progress and outcome of the World War? (Ws & Wr — Sep 1939)

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Conrad von Hötzendorf and Italy. (Ras Cul Mil — Oct 1939)

EUROPEAN AREA — RUSSIAN THEATER

Hoffman. (Inf Jour — Jan-Feb 1940)
Thoughts on the application of war experiences to troop training. (Mil-Woch — 2 Jun 1939)
Rennenkampf as the commander of the First Army in the fall of 1914. (Mil-Woch — 28 Jul 1939)
The Battle of Tannenberg, 1914 as evaluated from the standpoint of military history, tactics and education. (Mil-Woch — 18 Aug 1939)
Aerial operations of the German Eighth Army before and during the Battle of Tannenberg. (Mil-Woch — 25 Aug 1939)

EUROPEAN AREA — WESTERN THEATER

1914

Baptism of fire. (Mil Rund — Jul 1939)
Tanks in combat with and against cavalry. (Mil-Woch — 9 Jun 1939)
Supply and operations plan. (Mil-Woch — 1, 7 July 1939)
Combat impressions. (Rv d'Inf — Sep 1939)

1917

Lessons from the English tank attack at Cambrai, 20 November 1917, as applied to the present. (Mil Rund — May 1939)
The German defense against French and English penetrations in the Spring of 1917. (Mil Rund — Jul 1939)
The birth of the tank. (Panzer — Jan 1940)

1918

The taking of Montfaucon. (Inf Jour — Mar-Apr 1940)
Offensive doctrines. [See "Original Military Study"]
The penetration as applied in the battles in the year 1918. (Mil Rund — May, Jul, Dec 1939)

L — Naval History

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WASHINGTON, General George (1732-1799)

General George Washington. (QM Rev — Jan-Feb 1940)

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Ordnance with the cavalry. (A Ord — Mar-Apr 1940)
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From ballista to breech loader. (CA Jour — Mar-Apr 1940)
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The employment of the mortar platoon in the rifle and cavalry regiments and the motorcycle battalions. (Mil-Woch — 23 Jun 1939)
The fire fight of the rifle company in the attack and the defense. (Mil-Woch — 1 Jul 1939)
The cooperation of the rifle company with infantry and artillery heavy weapons. (Mil-Woch — 14 Jul 1939)
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Thoughts on infantry training. (Mil-Woch — 18 Aug 1939)
The fundamental problems of cavalry. (Mil-Woch — 15 Sep 1939)
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Individual instruction of the soldier in the use of heavy weapons. (Rv Mil Suisse — Oct, Nov 1939)

WITHDRAWAL

The 1940 spring maneuvers. (Cav Jour — Mar-Apr 1940)
Teamwork between the artillery and infantry in the defensive up to the withdrawal to the main line of resistance. [See "Foreign Military Digests"]

Y

YUGOSLAVIA (ARMY OF)

The Yugoslavian Army. (Mil Rund — Jul 1939)

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A well-established maxim of war is not to do anything which your enemy wishes—and for the single reason that he does so wish.

You should, therefore, avoid a field of battle which he has reconnoitered and studied. You should be still more careful to avoid one which he has fortified and where he has entrenched himself. A corollary of this principle is, never to attack in front of a position which admits of being turned.

—Military Maxims of Napoleon.

HISTORY OF THE COMMAND AND GENERAL STAFF SCHOOL

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PART VI

In 1904 it seemed advisable to cover the complete work of the school in two years, the work of the first year to come under the designation, *The Infantry and Cavalry School* and the work of the second year under *The Staff College.* In addition a *Signal School* was to be established at Fort Leavenworth. All this was provided for in General Orders No. 115 of that year. Major General J. Franklin Bell, who was designated as Commandant, brought great interest, energy, and ability to the school. He generously gave much credit to Lieutenant Colonel Arthur Wagner for assistance in the preparation of the reorganization plans. Colonel Wagner was ordered to Fort Leavenworth to head the work of instruction with the title of Assistant Commandant, but early in 1904 he was transferred to General Staff duty.

In 1905, General Orders No. 140, War Department, provided another revision of the instruction program and again the basic school was named *The United States Infantry and Cavalry School.* In 1907, General Orders No. 211 changed the name to *The Army School of the Line.*

And so the schools continued to perform their excellent work under the impetus given to it by General Bell and Colonel Wagner, and under the remarkable instructional leadership of Colonel John F. Morrison through the years leading up to the World War. High command and staff work was emphasized more and more and to the extent that prevision was possible, preparation was made for the work which Fort Leavenworth graduates were to perform during the World War. During these years the personalities of Wagner and of Morrison provided a student enthusiasm in the work which was quite beyond the ordinary, and their work was ably extended by many excellent instructors.

From the beginning of the Fort Leavenworth school, those who visualized its possibilities desired that its graduates should exercise a wide influence upon Army training. However, it was not until 1907 that the rank of student officers was fixed sufficiently high to insure that they would exercise considerable authority after graduation.

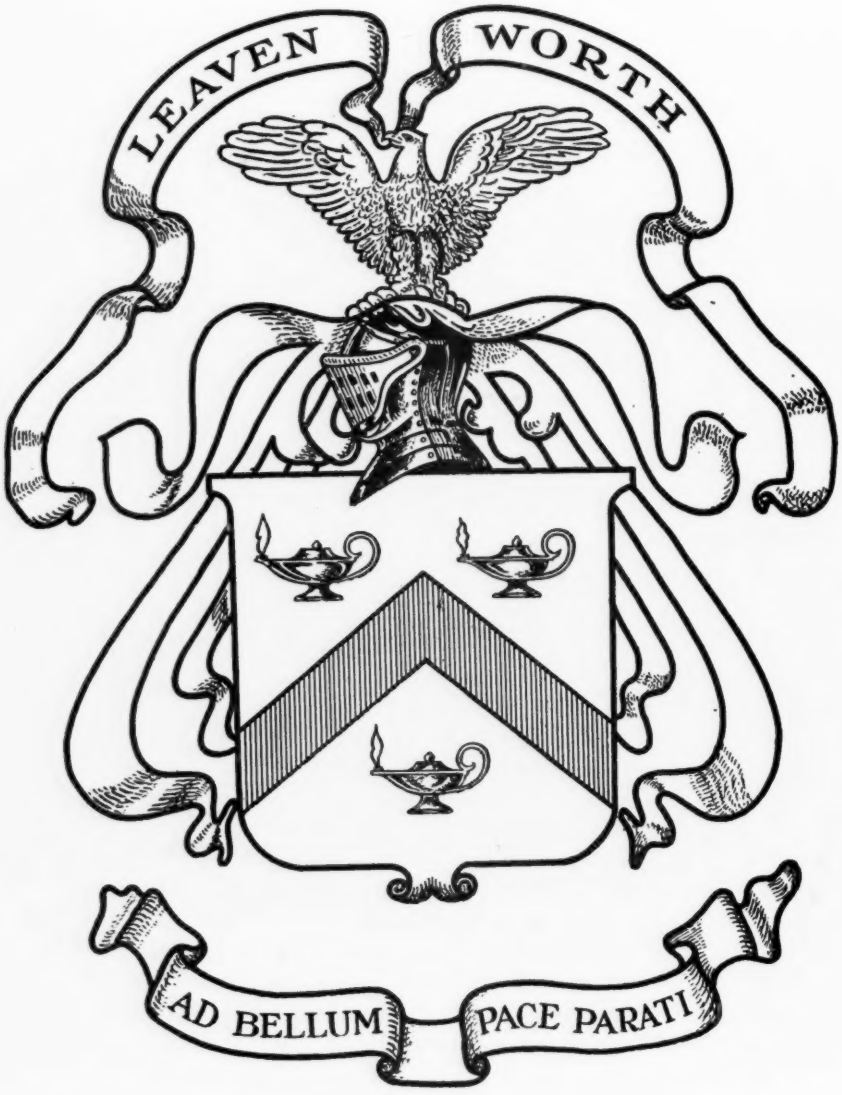
Concerning this new policy, Major General J. Franklin Bell, in his annual report said:

> "The policy that has been announced and which goes into effect with the incoming class, of detailing young ranking majors and old ranking captains as student officers here is one that is bound to give general satisfaction, and will result in immense benefit not only to the officer detailed, but to the army at large. . . . The detailing of lieutenants for instruction here has been, in my opinion, a mistake, not for the reason that the officer detailed did not receive immense personal benefit and professional knowledge, but because after graduation they were never, or very rarely, able to put this newly acquired information into practice, either in their companies or regiments."

The policy of giving preference to Fort Leavenworth graduates in detailing military instructors to the colleges was a forward step in utilizing their services. In 1904, General Bell extended the influence and prestige of the school by causing the fifteen graduates of the current Staff College Class to be sent to the extensive maneuvers held that year at Manassas, Virginia, where they performed superior service as umpires.

In the Vera Cruz expedition in 1914, we find many Fort Leavenworth men in responsible positions. But it was not until the World War that Fort Leavenworth graduates found themselves filling the very positions which Bell, Wagner, Morrison, and others had believed they would some day be called upon to fill and for which these leaders in instruction had prepared them.

(To be continued)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